French Security and Defence Policy

Current Developments and Future Prospects

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Abstract:

The study discusses and analyzes the present French security and defence policy, and the development of military doctrines and nuclear deterrence. The focus is on the current French military five-year plan 1987-1991 and the political implications of the Mitterrand Government's security and defence policy decisions, against the background of the French post-war military thinking. The ten chapters review doctrines; the development of French nuclear weapons; overseas military presence; military co-operation; the relationship with the FRG; the possible French position in a common European defence; strategic nuclear forces and nuclear deterrence; the structure and organization of the armed forces; arms trade and defence industry. The final chapter focuses on the French Military Programming Laws.

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Co-operation, Doctrines, Security, Arms trade, Nuclear forces, Defence budget, Deterrence, Defence expenditures, Mitterrand, France, USA, Great Britain, the FRG, WTO, NATO.

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French Security and Defence Policy: Current Developments and Future Prospects.

Huvudinnehåll:

Studien behandlar fransk säkerhets- och försvarspolitik samt utveckling av fransk försvarsdoktrin och kärnvapenavskräckning. Den aktuella franska militära fem-års budgeten för 1987-1991 och de politiska konsekvenser Mitterrand regeringen's säkerhets och försvarspolitik medfört ligger i fokus. Det franska militära tänkandet presenteras med utgångspunkt från efterkrigstiden. De tio kapitlen innefattar analys av doktriner; utveckling av franskt kärnvapen; global militär närvaro; militärt samarbet; förhållandet till Västtyskland; strategiska kärnvapen och avskräckning; fransk inställning till ett framtida Europeiskt försvar; struktur och organisation av försvarsgrenarna; vapenhandel och försvarsindustri. Det sista kapitlet behandlar den franska militärbudgeten.

Nyckelord:

Samarbete, doktriner, säkerhet, vapen system, kärnvapen styrkor, försvarsbudget, avskräckning, Mitterrand, Frankrike, USA, Storbritannien, Västtyskland, WTO, NATO.

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Preface

This case study of French security and defence policy was undertaken 1989–90 originally as a 30-page thesis for the C–level in Political Science at the University of Uppsala, sponsored as a report by the National Defence Research Institute (FOA) in Stockholm. However, because of the findings and complicity of the subject, the paper grew almost exponentially. Having hardly done more than scratched on the surface, I regret to say that, because of time constraints and the size of the report, the final truth about French security and defence policy will have to be published in a future study.

I am greatly indebted to Don Odom, who has spent considerable time and energy at editing the report, as well as provided support and warm friendship during the time of my writing and research. Also warm thanks to Elisabeth (who let him do it) and to Kim (who let me do it).

Finally, I want to thank Robert Dalsjö, Lennart Johansson and Ingemar Dörfer at FOA for reading and commenting on the report. Any errors and inadequacies of the report remain entirely my own.

0 FREDRIK WETTERQVIST

Abbreviations and acronyms

ABM	Anti-Ballistic Missile
ACCS	NATO Air Control and Communications System
ACF	Avion de Combat Futur
ACM	Avion de Combat Marine
ACT	Avion de Combat Tactique
ADC	Alliance Development Corporation
ADP	Automatic Data Processing
AEG	Allgemeine Elektricitäts-Gesellschaft
AFCENT	Allied Forces Central Europe
ALAT	Aviation Légère de l'Armée de Terre
ALFOST	Admiral in charge of the FOST
ALINDIA	Admiral in charge of the Indian Ocean
ALPACI	Admiral in charge of the Pacific Ocean
AMX	Atelier d'Issy-les-Moulineaux
ANL	Anti-Navire Légère
ANS	Anti-Navire Supersonique
ANZUS	Australia, New Zealand and the USA
ASAT	Anti-Satellite
ASLP	Air Sol Longue Portée
ASMP	Air Sol Moyenne Portée
ASP	All-Weather Smart Projectile
ASRAAM	Advanced Short-Range Air-to-Air Missile
ASTARTÉ	Avion Station Relais de Transmissions Éxceptionelles
ATGW	Anti-Tank Guided Weapon
AWACS	Airborne Warning and Control System
BAOR	British Army of the Rhine
BGT	Bodenseewerk Geratetechnik
BICES	Battlefield Information Collection and Exploitation System
BRITE	Basic Research in Industrial Technologies for Europe
C^{3}I	Command, Control, Communications and Intelligence
CAFDA	Commandement Air des Forces de Défense Aérienne

CBW	Chemical and Biological Warfare/Weapons
CDE-I	Conference on Confidence- and Security-Building Measures in Europe (Stockholm)
CECLANT	Commandant en Chef des Forces Françaises Atlantique
CECMED	Commandant en Chef des Forces Françaises Méditerranée
CENTAG	Central Army Group
CET	Common External Tariff
CFE	Conventional Forces in Europe
CIEEMG	International Committee for the Study of War Equipment Exports
CMEA	Council of Mutual Economic Assistance
CMP	Central Military Planning
CNAD	Conference of National Disarmament Directors
COFAS	Centre de l'Operation des Forces Aériennes Stratégiques
COTAM	Commandement du Transport Aérien Militaire
CTBT	Comprehensive Test Ban Treaty
CWC	Chemical Weapons Convention
DARPA	US Defense Advanced Research Projects Agency
DASA	Deutsche Aerospace
DGA	Délégation Général pour l'Armament
DM	Deutsche Mark
EC	European Community
EDC	European Dynamics Community
EDG	Euromissile Defense Group
EEC	European Economic Community
EFA	European Fighter Aircraft
EFTA	European Free Trade Association
EMDG	Euro-Missile Dynamics Group
EMS	European Monetary System
EMT	Equivalent Megatonnage
Enmod	Environmental modification
EPC	European Political Co-operation
ESA	European Space Agency

ECSU	European Coal and Steel Union
ESPRIT	European Strategic Programme in Information Technology
ET	Emerging Technologies
EUCLID	European Co-operative Long-term Initiative for Defence
EUREKA	European Research Co-operation Action
EUROMEP	European Missile Equipment Package
FAMS	Family of Anti-Air Systems
FAR	Force d'Action Rapide
FAS	Forces Aériennes Stratégiques
FATAC	Force Aérienne Tactique
FEDN	Foundation pour les Ètudes de Défense Nationale
FFr	French Francs
FINABEL	France, Italy, the Netherlands, the FRG, Great Britain, Belgium and Luxemburg
FNS	Forces Nucléaires Stratégiques
FLOT	Forward Line of Own Troops
FLA	Future Large Aircraft
FOFA	Follow-On Forces Attack
FOST	Force Océanique Stratégique
GDP	Gross Domestic Product
GEC	General Electric Company
GIAT	Groupment Industriel des Armaments Terrestres
GNP	Gross National Product
HAC	Hélicoptère Antichar
HAP	Hélicoptère Appui Protection
HF	High Frequency
HOT	Haut subsonique, guidage Optique, lancement par Tube
ICBM	Intercontinental Ballistic Missile
IEPG	Independent European Programme Group
IHEDN	Institute des Hautes Études de Défense National
IISS	International Institute for Strategic Studies
IMF	International Monetary Fund
INF	Intermediate-range Nuclear Forces
IRBM	intermediate-range ballistic missile

KGB	USSR Committee for State Security
kt	kiloton
LF	Low Frequency
LRP	Long-Range Patrol
LTDP	Long Term Defence Programme
MAD	Mutual Assured Destruction
MBB	Messerschmidt-Bolkow-Blohm
MBLE	Manufacture Belge de Lampes et de matérial Électronique
MBT	Main Battle Tank
MFO	Multi-National Force and Observers
MIDS	Multifunctional Information Distribution System
MIRV	Multiple Independently Targetable Re-entry Vehicle
MLRS	Multiple-Launch Rocket System
MSBS	Mer-Sol Balistiques Stratégiques
MTCR	Missile Technology Control Regime
MTU	Motoren- und Turbinen-Union
NAAG	NATO Armaments Group
NADGE	NATO Air Defence Ground Environment
NAMSA	NATO Maintenance and Supply Organization
NASA	National Aeronautics and Space Administration
NATO	North Atlantic Treaty Organization
NFR-90	NATO Frigate Programme for the 90s
NG	Nouvelle Génération
NH-90	NATO Helicopter for the 90s
NIAG	NATO Industrial Advisory Group
NORTHAG	Northern Army Group
NPT	Non-Proliferation Treaty
NAVSTAR	Navigation Systems Using Time And Ranging
OEEC	Organization for European Economic Co-operation
OMAR	Organisation des Transmissions de la MARine
OMIT	Organisation Mondiale Interarmées des Transmissions
PAH	Panzerabwehrhubschrauber
PS	Parti Socialiste
PTBT	Partial Test Ban Treaty

R&D	Research and Development
RACE	R&D in Advanced Communications technologies for Europe
REFORGER	Return of Forces to Germany
REOSC	Récherches et Études d'Optique et de Sciences Conexces
RITA	Réseau Integré de Transmissions Automatique
RPR	Rassemblement pour la République
RPV	Remotely Piloted Vehicle
SACEUR	Supreme Allied Commander Europe
SACLANT	Supreme Allied Commander Atlantic
SALT	Strategic Arms Limitation Talks
SDI	Strategic Defense Initiative
SEA	Single European Act
SHAPE	Supreme Headquarters Allied Powers Europe
SIGINT	Signals Intelligence
SIPRI	Stockholm International Peace Research Institute
SIRPA	Service d'Information et de Relations Publiques des Armées
SLBM	Submarine-Launched Ballistic Missile
SNA	Sous-marine Nucléaire d'Attaque
SNECMA	Société Nationale d'Étude et de Construction de Moteurs d'Aviation
SNF	Short-range Nuclear Forces
SNLE	Sous-marine Nucléaire Lanceur d'Engins
SPD	Sozialdemokratische Partei Deutschlands
SPOT	Satellites Pour l'Observation de la Terre
SRAM	Short-Range Attack Missile
SRBM	Short-Range Ballistic Missile
SSBN	Sol-Sol Balistique Nucléaire
SSBS	Sol-Sol Balistique Stratégique
SNA	Sous-marin Nucléaire d'Attaque
START	Strategic Arms Reduction Talks
SYRACUSE	Système de Radio-Communication Utilisant un Satellite
TACAN	Tactical Air Navigation
TASM	Tactical Air-to-Surface Missile

TCID	Tactical Communications Interface Device
TRT	Télécommunications Radioéléctrique et Téléphonique
UNIFIL	UN International Forces in Lebanon
VLF	Very Low Frequency
VFW	Vereinigte Fleugzeugwerke
WEU	Western European Union
WTO	Warsaw Treaty Organization

1. Introduction

I. Overview of the study

The purpose of this report is to examine some of the main components of French defence and security doctrines over the past 15 years, with an overview of these aspects since the Second World War. The report covers some of the recent major changes in French military doctrine, both planned and implemented, to include: changes in the French armed forces' strength and tasks, the nature of France's military relationship to some key allies, some of the key aspects of the French armaments industry and the French aspiration to influence European security policies with the possible result being the establishment of a common European defence.

France withdrew from the integrated military command of the North Atlantic Treaty Organization (NATO) in 1966, in order to achieve independence from Allied political influence and pressure, particularly from the USA. Although France still does not participate in NATO's military command structure, France's relationship to the Alliance has changed, both as a result of the domestic political situation and the changing security environment in Europe.

The USA is increasingly concerned about the cost of European security and may opt to reduce its commitment to Europe both in terms of troop strength and financial support. These actions would likely be accomplished concurrently with the European states assuming more responsibility for regional security.

In the Soviet Union, President Mikhail Gorbachev has repudiated the expansionist Brezhnev Doctrine and has elevated the issues of disarmament and *détente* to a position high on the global security agenda. Furthermore, the Soviet Union is concerned about the high level of its military expenditure and seeks to free badly needed funds for the restructuring of the Soviet economy.

In Western Europe, the debate of the 'dual-track' decision has receded with the recent developments in Eastern Europe. The Cold War appears to be over—at least in its present form—and the threat to Western Europe represented by the Warsaw Treaty Organization (WTO) is at its lowest level in a decade. Moreover, European Community (EC) members are thoroughly occupied with the creation of the single European market, in which two WTO and Council of Mutual Economic Assistance (CMEA) countries—Hungary and Poland—have also displayed great interest.

Defence spending in France, as in most other European states, is losing priority to growing political demands for increased outlays for educational and social programmes. French politicians also recognize the growing political difficulties in defending the enormous military expense associated with the maintenance of a modern and effective French independent nuclear deterrent and, at the same time, a global military presence. In response to these pressures, French defence doctrine is slowly beginning to change.

One way the French leadership attempts to deal with the problem of financing military programmes is to seek allies willing to share the costs of research and development (R&D) of the major French *non-nuclear* programmes. Another method concerns the French effort to influence European military policies in organizations, such as the Western European Union (WEU) and the Independent European Programme Group (IEPG), so as to encourage the placement of orders for the French arms industry. The French ambition to increase its political strength in Europe is also evident in its participation in the EC. As a result of Great Britain joining the European Monetary System (EMS) and France's close industrial and political co-operation with the Federal Republic of Germany, France is poised to become an extremely influential member of the post-1992 single European market.

With the likely possibility of at least a partial US military withdrawal from Europe, France perceives an opportunity to revive the idea of a purely European defence. In this respect, France considers its influence over the FRG's security policy to be crucial, largely out of a fear over what a reunified Germany could mean for France. Forbidden by its constitution to possess nuclear weapons, the FRG has for many years demanded nuclear protection and has urged France to extend its nuclear umbrella to cover the FRG, which France has consistently refused to do. At the same time, however, French short-range ballistic missiles (SRBMs) could strike German territory in a central European war, to the obvious dismay and concern to the FRG.

Chapter 2 describes the historic evolution of French military doctrines and political issues since the Second World War, beginning with the birth of the French independent nuclear programme and continuing with de Gaulle's attempts to establish France as a third superpower after the US and the Soviet Union, and the aftermath French withdrawal from the NATO military command. The de Gaulle era was followed by the short presidency of Georges Pompidou, during which French defence doctrine shifted from a threat assessment characterized by an expectation that the enemy may attack from any direction and a concept of a purely French defence, to a doctrine of explicitly identifying the Soviet Union as the likely aggressor. The doctrine recognized two threat scenarios: first, a battle on the FRG's territory in co-operation with NATO; and second, an independent battle on French territory. Pompidou's successor, President Giscard d'Estaing, continued the process of policy revision and sought a closer relationship with NATO, arguing that French security was dependent on the Allies and that the all-or-nothing policy on the use of the French nuclear missiles had to be revised. D'Estaing supported the US/NATO doctrine of 'flexible response', and favoured the strengthening of French conventional forces before addressing the requirements of the nuclear forces.

Under d'Estaing, France enjoyed close relations with the countries of Eastern Europe, as manifested by substantial exports, which also helped to improve the

French trade deficit. D'Estaing even went so far in his attempts to carry out an independent foreign policy as to permit the French Ambassador to the Soviet Union to attend the Moscow military parade on 1 May 1980—the only Western diplomat in attendance because of the USA-led protest over the Soviet invasion of Afghanistan.

In 1981, François Mitterrand became the first Socialist to become President of France. Contrary to what many observers expected, Mitterrand immediately denounced the Soviet invasion of Afghanistan and was extremely concerned about the level of Soviet military capabilities in Europe. Under Mitterrand, French defence doctrine surprisingly put new emphasis on tactical nuclear weapons. Overall, spending for the French Armed Forces was increased by about 15 per cent, which included outlays for the Hadès and M4 missiles, and the Mirage 2000 aircraft. The term 'tactical' nuclear weapons was replaced with 'prestrategic' to underscore the political difference of the French short-range and intermediate-range nuclear weapons. Supposedly, an immediate linkage between prestrategic and the strategic nuclear weapons existed, implying the French determination to use the latter if pressed. The Pluton missile was removed from the 1st Army Corps and placed under a separate army unit.

In 1983, the French rapid deployment force—Force d'Action Rapide (FAR)—was created. Thus, France took a significant step towards eventually fighting a conventional war alongside NATO forces in the FRG. It also represented the first time during the Fifth Republic that France, in case of war, had declared itself ready to take part in the forward defence of the FRG.

Because of France's special relationship to NATO, the 'dual-track' missiles were not slated for deployment on French territory. Mitterrand, however, did not hesitate to urge the FRG to agree to accept the deployment on its territory, which reflected the long-standing French position that, whereas Atlantic military integration was necessary for the FRG, it was not required for France.

In the early 1980s, Mitterrand supported President Reagan's anti-Soviet policy, but when the Strategic Defense Initiative (SDI) programme was introduced, Mitterrand soon found reason to be concerned over the military balance, the credibility of French national deterrence and the validity of France's claim to the status of a global power. At the summit meeting in Reykjavik between President Ronald Reagan and President Mikhail Gorbachev in October 1986, Reagan did not consult with the European NATO members about the arms reduction proposals. That, together with the Iran–Contra scandal, was enough to spark a revival of the negative Gaullist attitude in France concerning US relations with the Soviet Union. At the same time, however, Gorbachev was engaged in a highly publicized policy of *perestroika* and *glasnost;* and the Soviet Union's negative human rights record, which so greatly concerned the French Socialists in the early 1980s, had improved.

During the 'co-habitation' period between 1986-88, Prime Minister Jacques Chirac (a neo-Gaullist) engaged in a number of disputes over defence policy with President François Mitterrand. In France, the Prime Minister is constitutionally responsible for the national defence, while the President serves as Commander-in-Chief. Mitterrand rejected Chirac's proposals to reserve land-based tactical weapons as a weapon of final warning or for use on the battlefield and to develop the S4, a mobile intermediate-range ballistic missile (IRBM). Instead, Mitterrand placed emphasis on the nuclear-powered ballistic missile-carrying submarines (SSBNs) and their missiles.

In 1989, Mitterrand mediated between the French Defence and Finance Ministers to decide future military spending with the only realistic alternative being to cut certain programmes. At the same, negotiations concerning security co-operation with both Great Britain and the FRG continued.

In 1990, the disarmament negotiations on Conventional Forces in Europe (CFE) in Vienna focused on the size of reductions of forces for both power blocs, NATO and the WTO. The talks are likely to result in cuts also for France, but Minister of Defense Jean-Pierre Chevènement does not think that cuts will affect the French strategic forces in any way. In the aftermath of a completed CFE Treaty and ratification of the bilateral START Treaty, concentration on work on an SRBM treaty is expected to begin. Such a treaty would threaten the future French Hadès missiles which with their maximum range of 500 km will only reach into the eastern part of Europe. With the withdrawal of the NATO Lance missiles, the present Pluton SRBM will be the only SRBM left in Europe, putting hard pressure on France to re-assess its nuclear deterrent policies.

Chapter 3 examines the links France has established over the years with countries outside of the European region. These links were largely established for military or strategic reasons: namely, to continue its independent nuclear testing programme, to locate bases for its overseas military forces and to secure customers for French arms exports.

Since the early 1960s, the French nuclear testing programme has been carried out in the South Pacific on the islands of Moruroa and Fangataufa. This move was necessitated by the loss of testing sites in Algerian Sahara after the attainment of independence by Algeria. France's claims in the South Pacific, an area 14 times as large as continental France, are of great importance to the French economy. New Caledonia, for example, possesses about 30 per cent of the world's known reserves of nickel and is also one of the largest producers of metal. The Kanak nationalist movement on the island, however, has disrupted relations with the French government and has prompted Prime Minister Michel Rocard to promise New Caledonia a referendum on independence towards to the end of this century.

France's military bases around the world have proved to be of major importance, not only for France but for French allies. During the Falklands War, for example, Great Britain used the French naval base in Dakkar, Senegal.

The creation of the FAR also demonstrated a continued commitment by France to employ its forces to assist allied countries in Africa in a time of crisis.

Over a five year period 1983–87, France intervened militarily in support of Hissene Habré's Chadian forces against Libya and in 1986 in Togo to maintain internal order.

The economic development of France's African allies has been an important element in French foreign policy since the 1950s. France has declined to support increased military spending on the part of these African countries and has strongly encouraged trade concessions. These actions underscore France's commitment to assistance in the development efforts of these countries. Africa is the only region where France has been consistently able to show a trade balance surplus. Nearly all of France's uranium for its independent nuclear weapon industry, a third of its copper and about a third of its oil come from Africa. In an attempt to increase its competitiveness vis-a-vis other European nations and to encourage French companies to expand their markets, France has also begun to include non-francophone African states in its economic assistance programmes.

France's connections to the South African regime have been extensive at least since the 1960s. During the 1960s, France provided arms, for example Mirage III, air-to-surface missiles and submarines to South Africa in return for uranium. From the 1970s, South Africa also manufactured French weapons on license. Because of increased international and domestic pressure, Mitterrand has restricted France's connections with South Africa in the 1980s. This was especially evident in 1986 when France withdrew its ambassador. However, military co-operation with South Africa has apparently taken place because of loopholes in regulations governing French arms exports. For example, France is widely suspected of having provided considerable technical assistance to South Africa in its upgrade of the Mirage III aircrafts and its current effort to develop a combat helicopter.

Latin America is another important region for French arms exports. French Guiana has become a European centre for space research, and the Kourou base is the launching site of all French satellites including the multinational Ariane programme, and the SPOT, Helios and Hermès satellite programmes.

Chapter 4 briefly examines the record of French participation in some of the most important European organizations. Of particular interest is France's relationship to its Western allies, particularly the USA and Great Britain. Although it is evident that Mitterrand's policies in the early 1980s resembled the conservative de Gaulle's autonomous, almost hostile, independent French foreign policy more than it reflected traditional Socialist doctrines, it is now clear that Mitterrand strongly favours closer collaboration with the other West European allies. Several deals between French armament companies and other Western European companies point to the fact that France now admits, and indeed encourages, military co-operation and burden sharing, even at the possible (although not explicitly recognized) cost of total military and political independence.

France proposed the European Research Co-operation Action (EUREKA) project, a European agency to co-ordinate research with both civil and military applications, in response to the US SDI programme. Mitterrand has very actively promoted greater European collaboration, strengthening the European pillar against both the USA and the Soviet Union, by intensifying France's role in such organizations as the WEU, the IEPG, the European Co-operative Long-term Initiative for Defence (EUCLID) and the Euromissile Dynamics Group (EDG).

Although France is not officially a part of the integrated military command of NATO, it is either a member or an observer on most of the organization's committees and participates in many Allied manœuvres, but under French command. France is a partner in some of the major NATO programmes, such as the Multifunctional Information Distribution System (MIDS), the Battlefield Information Collection and Exploitation Systems (BICES) and the development of the standard computer language Ada.

About 50 000 French troops are stationed in the FRG. Given the acquisition of the new AMX Leclerc main battle tank (MBT) and PAH-2/HAP/HAC-3G helicopter, the FAR will be a valuable force to complement Allied defence of the FRG. Although France has not accepted NATO's 'layered cake' division of the FRG, it recognizes its obligation to NATO. Secret plans exist for wartime use of French territory, facilities, lines of communication and airfields (designated as dispersion bases for NATO's AWACS aircraft). Indeed, hospitals have already been designated for the use of the US military, with medical supplies in French containers already in place.

France's links to the USA and Great Britain are particularly interesting because of the revelations during the summer of 1989, that the French nuclear arsenal had been developed with a fair amount of US advice. This could possibly bring the French nuclear arsenal closer to that of Great Britain, which was developed largely by the USA. Great Britain, however, is restricted by the fact that it, unlike France, is a signatory to the 1963 Partial Test Ban Treaty (PTBT). The implementation of a total ban would eliminate Great Britain's nuclear test programme, and France would likely be pressed, by environmental groups and others, to reduce its test programme. Furthermore, France is now the only country in Europe which retains missiles covered by the 1987 Intermediate-range Nuclear Forces (INF) Treaty. Indeed, France is under considerable pressure from the Soviet Union not to develop the S4 IRBM.

On the SRBM range, France and Great Britain are presently discussing possible co-operation on a version of the French ASMP/ASLP aircraft carried missile for the Royal Air Force. In light of the withdrawal of the NATO Lance missile from Europe, there is need for an aircraft carried alternative. Strong competitor to the French ASMP/ASLP is the US TASM or future Super TASM with a range of 1000 km.

Under terms of agreements with Great Britain, British forces retain the right to use French lines of transportation during reinforcement exercises of the

British Army of the Rhine (BAOR) and during time of war. Furthermore, an agreement also exists which permits French SSBNs to call at British ports. French industrial co-operation with the British is exemplified by the Reciprocal Purchase Initiative of 1987, and the annual conferences on defence equipment co-operation. These bilateral initiatives are crucial for France in that they strengthen ties with Great Britain, which is developing increasingly powerful bonds to the FRG. The European Fighter Aircraft (EFA) programme and the GEC (General Electric Company)–Siemens ties are examples of such Anglo-German co-operation.

The French military connections to the USA have included the purchases of uranium 235 for the French nuclear submarine reactors and the KC-135 tanker aircrafts. Furthermore, France's submarine fleet has relied on US navigation satellites; and France has used US navigation technology in support of its strategic submarine force.

Chapter 5 examines Franco-German rapprochement and assesses the importance of this special relationship as reflected in military R&D co-operation and the establishment of the Franco-German military brigade. After the Second World War, French politicians were determined that Germany would never again pose a military threat to France. The FRG was not permitted to develop its own nuclear defence and had to pay particularly high war-damages to France. However, as the FRG's industry and economy gained in strength, France signed the Elysée Treaty with the FRG in 1963.

During the 1960s and 70s, Franco-German military co-operation was strong and included such programmes as the Milan, HOT and the Roland missiles, and the Alpha Jet fighter, the Transall transport and the Atlantique surveillance aircraft. In the 1970s, the FRG's economy had far surpassed that of France and necessitated the devaluation of the French franc on several occasions after pressure from the West German Bundesbank.

Although France may be inferior to the FRG in an economic sense, France, nevertheless, has apparently been anxious to find ways of influencing the FRG. The deployment of Soviet SS-20s in Eastern Europe provided France with a rationale to approach the FRG concerning further co-operation in security matters. In 1982, the Ministers of Defence and Foreign Affairs were to meet informally on a regular basis and a Council on Common Defence and Security was formed with three working groups on arms co-operation, military co-operation and politico-strategic affairs. In 1987, the joint military brigade, proposed by the FRG, was established. Although the military importance of the brigade may never be more than symbolic, it is a clear sign that the French defence policy now accepts the idea of closer military co-operation with its allies.

Chapter 6 examines the prospects for a future European defence, and France's ambitions to influence such a venture. The discussions concerning the implementation of the single European market have also revitalized ideas of a European common defence. The warm Franco-German relationship has strongly contributed to the revitalization of the WEU, and the establishment of the joint brigade has sparked the interest of Great Britain, Spain and Italy in the formation of similar brigades.

If the USA decided to withdraw its nuclear deterrent from Europe, Great Britain and France would remain as the only West Europe countries with nuclear weapons. Because of the fact that these two may be able to share parts of the nuclear technology and cannot afford to provide a nuclear arsenal forever without foreign assistance, the idea of an Anglo-French nuclear deterrent is interesting, providing that France abandons its independent nuclear force structure. It is not obvious that the other NATO European nations would agree to rely on an Anglo-French nuclear deterrence against the WTO. Furthermore, such a deterrent would seem to require that the FRG decide when the weapons would be used, considering that the missiles would most likely be fired on that country's territory.

Chapter 7 briefly examines the French nuclear deterrent and the structure of the nuclear forces and related space technology. France's current nuclear deterrent lies in the policy of inflicting so much damage upon the aggressor that an attack on France would be unacceptable. If the prestrategic missiles do not immediately halt the aggressor's advance against France, then their mission of providing a 'final warning' has been executed. Thereupon, France, on orders of the president, would launch its S3 strategic nuclear missiles targeting the Soviet Union's 'vital works' (essentially its population centres). The concept of 'flexible response' does not exist in French nuclear weapons doctrine. The national territory of France is considered to be a 'sanctuary' which, if attacked, would immediately justify the use of nuclear weapons. Dilemmas created by this doctrine are many. For example, is France prepared to begin a nuclear war with a nuclear weapon-superior Soviet Union, possessing the capability of launching a devastating second strike? Should France launch its nuclear weapons even if the attack on France was very limited, both in power and composition of enemy forces? The answers to both questions seem to lie in this ambiguity—the enemy will not know when the nuclear response would come—and the obvious—France has enjoyed the full protection of the US nuclear umbrella of Europe and of the US forces and missiles in the FRG. France has simply had little reason to define its defence doctrine very precisely.

To protect itself from a defeat by a first-strike attack on its S3 missiles and its airfields for the nuclear missile-carrying Mirage and Jaguar aircraft, France retains six nuclear-powered ballistic missile-carrying submarines (SSBNs) armed with missiles carrying multiple independently targetable re-entry vehicled (MIRVed) warheads. Super Etendard aircraft with nuclear bombs are also deployed aboard two nuclear-powered aircraft carriers.

The French triad of strategic nuclear forces are organized under the Forces Nucléaires Stratégiques (FNS) and consists of the SSBNs, the IRBMs and the strategic bombers. The submarine fleet is of particular importance in that it provides France with a second-strike capability, and possesses 256 warheads alone. The SSBN programme has been the most important of all French defence programmes during the 1980s, both in terms of its high expenditures and its priority in the Military Programming Laws.

The Pluton and the future Hadès SRBM programmes are under the supervision of the French Army. The Hadès is slated to replace the Pluton in 1992. Under the programme three artillery regiments will be armed: 200 missiles will be manufactured, with 90 in the first production cycle. The Hadès missile is capable of carrying nuclear, neutron, chemical and biological warheads, and has a 350-450 km range.

French space policy has been developed largely to sustain France's independent nuclear deterrent and to provide surveillance and communications support for French crisis management. An independent satellite network would also secure a national navigation system for the submarine fleet and an improved anti-ballistic missile defence. Space research has a high political priority in France, both for European co-operation and the technological competition with the USA and others. Among the satellite programmes with military applications are the Satellites pour l'Observation de la Terre (SPOT), Helios and the Système de Radio-Communication Utilisant un Satellite (SYRACUSE) programmes. A SPOT satellite took the first pictures of the Soviet Krasnoyarsk radar station (an admitted violation of the 1972 Anti-Ballistic Missile Defence [ABM] Treaty) and the Helios satellite (to be launched in 1993) will have an optical resolution of one square metre, as opposed to 10 square metres for SPOT. The SYRACUSE satellites provide the necessary links for France to carry out global communications with its forces.

Among the multinational missions planned for 1992 are a manned orbital mission with the Soviet Union and the Topex/Poseidon ocean circulation monitoring programme and the Mephisto materials processing experiment with the US National Aeronautics and Space Administration (NASA). The Rhesus biological mission is scheduled for early 1993 (also in co-operation with NASA). Sometime later, the Hermès space shuttle will be launched. The shuttle programme is carried out with some assistance from the Soviet Union, after the USA was reluctant to approve French access to US testing facilities.

Chapter 8 examines the structure of the French armed forces and the reorganizations since 1977. Particular attention is given to French chemical and biological weapons and the FAR.

The Navy will face reductions of programmes in the future because of the unexpectedly high costs of the *Charles de Gaulle* aircraft carrier (now under development) and the Rafale aircraft which, in its naval version, will succeed the Vought F-E8 Crusader fighter aircraft. There are 11 nuclear-powered and 15 conventionally powered submarines in the French submarine fleet. Six SSBNs of the Triomphant class have been ordered, with delivery to begin from 1994 to replace the Redoutable class (to be retired one by one from 1995). In an effort to improve French anti-submarine warfare (ASW) capability, four Rubis class nuclear-powered attack submarines (SNAs), and one of the new

Améthyste class SNAs back up the SSBNs. All four Rubis SNAs will be upgraded to Améthyste class, and another three Améthyste SNAs have been ordered.

The French Air Force had 581 combat aircraft and 112 helicopters in 1989, with total procurement orders of 333 aircraft (221 Mirage 2000B/C and 112 Mirage 2000N/N) paralleling the retirement of the ageing Mirage V and the conversion of 50 Mirage F1s to CTs. Perhaps the most extensive French aircraft programme ever is the Rafale, which was the French proposal for the EFA. Without any support from the EFA consortium to build the Rafale, France decided to do it alone. This may prove to be the greatest miscalculation in French aircraft history as well. The Air Force and Navy are estimated to require about 250 and 86 units, respectively. The aircraft has turned out to be extremely expensive to develop, and the Navy has had to consider US F/A-18 Hornets to replace the obsolete Vought F-E8 Crusaders in the meantime, because of the delays. The Rafale's designer and manufacturer, Dassault, estimates that it must sell about 2000 aircraft in order to break even. This is an unlikely prospect, because the European market is already prepared to buy the EFA, and the Rafale programme faces further competition from at least the US F-16 upgrade, the F/AIS Hornet and the Swedish JAS-39 Gripen. Surprisingly, the French Government has not demanded any major cutbacks in the programme, apart from the current delay of two years. The air force version of Rafale is planned to enter service in 1996.

The Army will also receive the new main battle tank, the AMX Leclerc. This programme represents another great miscalculation of costs with cost overruns of 26 per cent already in 1988. Delivery of 1400 tanks by 1992 has been reduced to 1050 tanks. Positive news for the Leclerc programme is that Canada has shown great interest in co-producing, and in ordering at least, 1600 tanks.

The French Armed Forces, and particularly the Army, has undergone three major restructuring over the past 15 years, resulting in changes in the number of divisions and military regions. The latest reorganization has been dubbed 'Armed Forces 2000'. According to its mentor, Minister of Defence Jean-Pierre Chevènement, this programme will take two years. Some of the reasons offered for this reorganization are lower of East–West tension, decreases in available manpower and, most importantly, increasing costs in R&D. There will be two army corps instead of three, with the FAR under the authority of the Headquarters of the 1st Army. The regional Air Force Headquarters will be reduced from four to three, and the Navy Headquarters reduced from three to two (one at Brest and one at Toulon). The number of divisions will be reduced from 22 to 10, and there will remain three large defence zones, identical in geographical area for the Navy, Air Force and Army.

The 47 000 men strong Force d'Action Rapide was created in 1983 for two main reasons: (a) France wanted to maintain a global military presence and remain a world power, which necessitated the acquisition of the capability to move large forces quickly over long distances; and (b) France had to improve its ability to intervene fast and flexibly in the FRG. Previously, France did not have any forces in the FRG which could participate in a forward battle because of a lack of heavy armour and the location of its forces in the western part of the FRG. Many observers consider the FAR to be a major step towards front-line combat alongside NATO forces for France, because of the FAR's mobility and anti-tank capabilities. Under SACEUR command, the FAR would depend on NATO air-support and logistics. In 1987, the FAR participated in the exercise 'Bold Sparrow' together with 22 000 West German troops, and under the command of a West German corps. Paralleling this manœuvre, and perhaps of greater importance, was that 200 French long-range patrol (LRP) behind-the-lines troops functioned, together with Belgian para-commandos, as enemy forces to the US 3rd Army Corps in the NORTHAG exercise 'Certain Strike'.

France reserved for itself the right to use toxic substances in retaliation when it signed the Geneva Protocol forbidding such weapons in 1925 and is considered to have had about 435 tons of chemical agents in stock in 1985. Former Chief of the Armed Forces, Jeannou Lacaze, former Prime Minister Chirac and President Mitterrand all have hinted towards the possibility of France having, or acquiring, chemical weapons. For example, it has been suggested that the Hadès missile would have the capability of carrying binary chemical weapons. In January of 1989, President Mitterrand hosted the Paris Conference on chemical weapons, where he declared that France did not store any chemical weapons. Critics, however, maintain that France could possess as much as the equivalent of the US or Soviet stocks in chemical weapons. Mitterrand, however, still would not have lied—the chemical agents in a binary weapon are harmless when stored separately, thus, no chemical weapon exists.

Chapter 9 examines the economics of France's arms industry and trade. Approximately 60 per cent of all arms manufacturing industries are owned by the state, and the arms industry employs about 6 per cent of the total industrial workforce. Arms exports have greatly contributed to the maintenance of French status as a global power, both by providing money for the improvement of France's balance-of-payments and by providing the money for the military to maintain a global presence. French aspirations to remain the third largest arms exporter in the world, however, have become more challenged in the 1980s than at any time before by various countries around the world.

Since 1982, France has begun to redirect its arms sales from the Middle East and African states to the industrialized world. Two-thirds of all arms exports had gone to the unstable Middle-Eastern region, putting France in a vulnerable position, while the purchasing power of the African states had been reduced as a result of depressed oil prices and increased levels of foreign debts. The US market also increased in importance with an enormous rise in US orders. Nevertheless, the redirection of sales has not been enough for the French arms industry to greatly increase sales volume. In Europe, French arms exporters are facing increased competition, with huge conglomerates being formed through buy-outs, cross-ownership and mergers. To remain competitive on the world market, even state-owned French companies must participate in these mergers. Furthermore, with the post-1992 implementation of the single European market, it will be increasingly harder for the smaller companies in France to compete for orders with such giants as Daimler-Benz and British Aerospace.

The Military Programming Laws—the five-year plans for the French defence—are briefly examined in chapter 10. Mitterrand's first five-year defence budget significantly increased the outlays for the sea-based element of France's nuclear forces. Submarine weapon systems such as the MIRVed SLBM and M4 missile were deployed, and the ASMP missile was introduced for the Air Force. The Socialist Government's second Military Programming Law included major outlays for the planned Triomphant class SSBN, the Hadès missile, the *Charles de Gaulle* aircraft carrier, the Rafale aircraft and AMX Leclerc programmes. The space programme received the largest increase in funding—52.3 per cent—in order to introduce the SYRACUSE II and Helios satellites in the early 1990s. Overall, defence allocations will be increased from $27.8 billion (FFr 182.36 billion) in 1989 to $28.9 billion (FFr 189.4 billion) in 1990, with the budget for equipment up 4.2 per cent. This increase, however, is far below what the Minister of Defence had desired in order to meet the Law's objectives. Thus, such programmes as the *Charles de Gaulle* aircraft carrier, the Rafale aircraft and the AMX Leclerc tank will be either reduced or delayed. Such key national defence programmes as the planned SSBNs and SNAs, and the M4 and Hadès missiles, are likely to escape severe cuts, because of the high priority President Mitterrand has assigned to these weapons and the likely savings to be had from the 'Armed Forces 2000' reorganization. The planned M5 missile programme will most likely be reduced to an M45 version of the M4, possibly also in a land-based version to replace the ageing S3, instead of the S4 programme. The number of Mirage 2000N aircraft delivered to the Air Force will be reduced from 75 to 45 aircraft, and the naval version of Rafale will be delayed until at least 2002, because of the delays in the completion of *Charles de Gaulle*

The Bibliography contains both sources directly quoted in the study, and sources which provided background information. All calculations are presented in the Appendix, and are based on the relevant market rates as reported by the International Monetary Fund (IMF).

2. Doctrines and politics

I. Prelude to the NATO partition

France was invaded by Germany in both world wars. At the conclusion of the Second World War, France was determined to neutralize Germany and to construct a balance of power in Europe. De Gaulle wanted to keep the USA out of this balance and intended to establish an alliance with the Soviet Union. Even before the war ended, de Gaulle envisaged a three-stage system, which he presented to Stalin in December of 1944. A Franco–Soviet alliance was to be the first stage, followed by an Anglo–Soviet and Anglo–French alliance in the second. Within the context of the United Nations, de Gaulle could include the USA in the third stage. De Gaulle anticipated that the group of European allies would serve as 'the arbiter between the Soviet and Anglo–Saxon camps' (Draper, 1985:67).

In 1946, a referendum established the Fourth Republic and de Gaulle stepped down as a public figure. After his return to power in 1958 and the establishment of the Fifth Republic, de Gaulle again attempted to form a European alliance, denouncing the 'two hegemonies' of the Soviet Union and the USA (Draper, 1985:67). De Gaulle regarded the North Atlantic Treaty Organization (NATO), as nothing more than an appendage to the USA which he had come to despise because of its involvement in European politics and security. De Gaulle's ideal was a 'European Europe' which, according to his concept of a Europe 'from the Atlantic to the Urals', included the Soviet Union but not the USA. France would then dominate the 'European Europe' as opposed to the 'Atlantic Europe' led by the USA (Draper, 1985:67). NATO support for this concept was not forthcoming, and de Gaulle proposed that a troika of France, Great Britain and the USA would lead NATO. This was rejected by the USA, much to the concern of France which considered Great Britain to already have close ties with the USA.

De Gaulle was greatly suspicious of offers of assistance to French security and defence from other nations. First, France had not received enough Allied assistance in the initial stages of either world war, and was, therefore, invaded fairly quickly by Germany. In 1956, both the USA and the Soviet Union refused to aid France (and Great Britain) in the Suez crisis. Moreover, France again stood alone in the war in Indo-China and at the battle at Dien-Bien-Phu, and in the Algerian War of Independence between 1954 and 1962.

From 1956, de Gaulle believed that France should exploit every chance to develop its own nuclear technology, and for this purpose the Comité des Applications Militaires was established in the Commissariat á l'Energie Atomique. Without an independent nuclear force, many analysts in the French foreign-policy establishment argued that France could be coerced to accept coverage by the USA's nuclear umbrella or could become the target of blackmail by the Soviet Union. Closer ties to the USA could also draw France into a conflict outside of Europe, de Gaulle argued, which could, in its extension, lead to a nuclear battle (Harrison, 1981b:56). After his proposals of 1958 were rejected, de Gaulle waited until 1961 to propose the so called 'Fouchet Plan' for the then six European Economic Community (EEC) members. France would influence the supranational element within this organization, but co-operation in the areas of defence, foreign policy and economy would be carried out under full national sovereignty. This time, Belgium and the Netherlands were more interested in a federal model and opposed the Fouchet Plan. They demanded British participation which, according to the French position, was impossible.

Having decided that it should strive to stay independent from US influences, France withdrew its Mediterranean and Atlantic fleets from NATO command in 1959 and 1964, respectively. In 1963, the French 1st Army Corps, stationed in France, had been established for the units returning from the Algerian War of Independence, and the general North African region. Instead of being subordinated to the Supreme Allied Commander in Europe (SACEUR), a French national command was established for the 1st Army Corps. In 1965, the remaining branch of the armed forces, the Air Force, and all of its tactical units were put into one national, tactical air command, the Force Aérienne Tactique (FATAC) (Ruiz Palmer, 1987:475).

De Gaulle was convinced that integration in NATO would weaken the national strength of both the French government and the people. There could be no independent decision-making, which would ultimately lead to France's total subordination to the USA, the strongest power among the Allies. In de Gaulle's view, France was destined to be a global power and should remain independent from the superpowers. To a large extent, these ideas have been carried on throughout the Pompidou, d'Estaing and Mitterrand Administrations (Harrison, 1981b:56).

As the final step, France withdrew from the integrated military command of NATO in 1966. All French forces assigned to NATO were placed under French national command. The Supreme Headquarters Allied Powers in Europe (SHAPE) and the Allied Forces in Central Europe (AFCENT) Headquarters were asked to relocate outside of French territory. NATO evacuated all of its bases in France and abandoned the use of the logistics infrastructure that crossed French territory which had been established over the years. French officials maintained that French land, airspace and general facilities could, possibly, be secured by negotiation in time of crisis, but there would exist no automatic right of use. At the same time, de Gaulle stressed that France would not withdraw from its commitment to the Alliance itself (Calleo, 1971:33–34).

The treaty signed in Washington in 1949 at the formation of NATO and the treaty signed in Brussels in 1955, making the FRG a full member of NATO, obliged France to come to the defence of any ally under attack. These treaties would still be honoured, de Gaulle asserted. The Chief of Staff for the Armed Forces, General Charles Ailleret, even received instructions to negotiate a secret agreement with the then NATO SACEUR Lemnitzer concerning French participation with the Allies in the event of war This treaty, the Lemnitzer-Ailleret Accord was signed in 1968 (Rudney, 1983:22).

II. The independent French defence doctrines

The defence doctrine of France centres around the concept of 'the independent deterrent manœuvre'. In time of crisis, 'proportional deterrence' was to be carried out by autonomous French forces with tactical nuclear weapons in a 'test' strike. If the adversary (presumed to be the Soviet Union) persisted, then the full force of the French strategic weapons would be released in a massive pre-emptive strike. This strike was defined in terms of threatening to kill the enemy's population in significant number—an 'anti-cities' or 'counter-population' doctrine. The idea was that France's strategic arsenal would be strong enough to inflict more damage to the Soviet Union than they would accept in order to defeat France. This was called 'la dissuasion du faible au fort' or 'the deterrence of the weak against the strong'. At first, the destructive capability of France's Mirage IV nuclear-armed bombers was just about the required minimum to pose such a threat, yet the entire doctrine centred around the 'force de frappe' —the strategic nuclear forces —and the 'force de dissuasion'—the doctrine of dissuasion. France acquired the first of its Mirage IV aircraft in 1964.

In the 1960s, the Gaullists generally maintained that France could not rely on NATO; instead they envisaged France's equal participation with the USA and Great Britain in the organization in the joint development of a global strategy. France's only other options were to remain independent with an autonomous nuclear arsenal or possibly to co-operate with Great Britain. Although the concept of a NATO-controlled or nuclear armed multilateral force which the USA proposed was out of the question as far as the Gaullists were concerned, the need for NATO and the US deterrent was generally accepted (Deutsch, 1967:29).

The Ailleret Doctrine

In 1967, General Charles Ailleret presented the Doctrine of 'Tous Azimuths'—a strategy for targeting of French nuclear weapons in all directions of the horizon. The idea of having French nuclear missiles targeted permanently on, among other states, the USA—an ally and a superpower—could, however, only have been authorized by de Gaulle himself (Freedman, 1983:43). Nevertheless, France obviously did not have the means of carrying out this doctrine, having barely enough missiles to target only one direction of the horizon.

The Ailleret–Lemnitzer Accord applies to the NATO Central Region and contains two central elements: (a) the French concept of a non-automatic response during a conflict and the exemption of a peacetime responsibility for certain defence zones; and (b) French acceptance of limited operational control: i.e., French forces remain under French command, *except* in the case of limited missions, in which case French forces might operate under Allied command. General François Valentin, the former Commander of the French 1st Army, reportedly stated that under the terms of the Accord, the integrated military command of NATO had agreed to provide nuclear weapons for France if a conflict was to become nuclear (before France acquired the Pluton missiles and before 1966) (Gama and Estrella, 1989:5).

The Fourquet Doctrine

General Michel Fourquet, Ailleret's successor as the Chief of Staff, presented a new military doctrine only a month after de Gaulle had resigned in 1969. The new 'Two Battles Doctrine' acknowledged the possibility of combat in the Federal Republic in co-ordination with NATO and on French territory in support of France's national deterrent manœuvre (Yost, 1984a:6).

In contrast to the 'Tous Azimuths Doctrine', the new concept clearly identified the Soviet Union as the potential enemy. The Gaullists were shocked because of the Doctrine advocated French a military co-operation with NATO. General Fourquet did not believe that an independent nuclear arsenal could allow France to remain neutral in a conflict between NATO and the Warsaw Treaty Organization (WTO). The 'Two Battles Doctrine' stressed a graduated, flexible response strategy, similar to the NATO strategy advocated by US Secretary of Defense Robert McNamara. In the early stages of battle, France would rely heavily on tactical nuclear weapons in order to create a linkage with the US strategic nuclear deterrent. France's independent strategic nuclear arsenal would then act as the final deterrent against an all-out attack on French territory. The dilemma of having to choose either to surrender the strategic forces or to commit national suicide (being completely destroyed by a massive Soviet strategic attack) could then be avoided (Hanrieder and Auton, 1980:112).

General Fourquet also signed a secret agreement with the SACEUR General Andrew J. Goodpaster on regulating collaboration between the French Armed Forces and those of other NATO countries (Dörfer, 1983:143). Although Fourquet envisaged possible co-operation with NATO, the main element of the 'Two Battles Doctrine' was the deliberate ambiguity as to exactly when the French actually considered themselves ready to strike in a massive strategic retaliation, and what indeed would group the execution a warning strike with tactical nuclear weapons (Kolodziej, 1987:76).

In 1974, the Valentin–Ferber Accord between France and the FRG, extended the geographical concept of the Ailleret–Lemnitzer Accord. France was now prepared to establish contact with NATO's Northern Army Group (NORTHAG) and the Allied Forces in Central Europe (AFCENT) to prepare France for possible intervention in NATO's northern region (Gama and Estrella, 1989:5).

New approach under Giscard d'Estaing

In 1976, d'Estaing and Guy Méry, the new Armed Forces Chief of Staff, dropped General Fourquet's 'Two Battles' concept in favour of an 'enlarged sanctuary' that included both European territory adjacent to France and the Mediterranean basin. A prominent strategic thinker, General Lucien Poirier, attempted to define three circles in his 1977 book *Des Stratégies Nucléaires*. The first circle, would be what d'Estaing identified as the 'national sanctuary', protected by the French nuclear arsenal. The second circle, encompassed territory bordering to France, particularly the FRG. Finally,the third circle, included French allies, *départements* and territories in Africa and the Third World. An ambiguous aspect of the doctrine was that the nuclear weapons were not explicitly told to protect the two latter circles, making an aggressor unsure of when, exactly, the use of the French nuclear missiles would be triggered (Laird, 1984a:308).

French tactical nuclear weapons were assigned a more European role and could be seen as battle weapons rather than as instruments for delivery of 'warning shots' linking tactical with strategic nuclear forces. Méry fundamentally challenged the Ailleret doctrine's stressing of the strategic nuclear forces and its de-emphasis of conventional or tactical nuclear forces, either operating independently or in co-operation with the Allies.

It was not until about this time that France, with the introduction of the AN-52 tactical nuclear bomb and the Pluton short-range ballistic missile (SRBM) actually had the power to execute the 'test' of the adversary's intentions toward France.

Many people in the French foreign policy establishment have denied the concept of the tactical forces acting as 'trip-wire' for the US strategic deterrent. They maintain that France's nuclear force exists solely to threaten a rapid and uncontrolled escalation to full-scale nuclear war, if the vital interests and the security of the national territory were threatened. However, no definition of what comprises a threat has been publicly announced.

President Giscard d'Estaing and General Méry argued that France's security was dependent upon its allies, and that it was necessary for France to question the prominence of the all-or-nothing policy on the use of French nuclear missiles. A broader spectrum of military options would permit a more flexible response, and the strength of the conventional forces had to be improved before that of the nuclear forces. These statements were heavily criticized in the

French media, by both the Socialists and the Gaullists in the French Parliament, because this doctrinal change would inevitably mean a step closer to re-integration with NATO, and reduced independence in French decision-making (Berger, 1982:20).

D'Estaing, however, was more concerned with French security on more of a global level. 75 to 80 per cent of France's imports are transported by sea, and 70 per cent of its oil supplies must travel around the Cape of Good Hope. One of the French Navy's main responsibilities is to prepare for an attack on these vital sea lanes, which are crucial to French security. In 1976, France took the opportunity to make sure that it would have some of these supplies under its flag. Following the lead of other states, d'Estaing declared a 200 nautical mile economic zone around French territory, including overseas territories. Because of France's possession of the numerous islands in the Pacific and Indian Ocean, its area was increased from 550 000 to 11 000 000 square km, moving the country to third place (from 53rd) among coastal states (Roberts, 1980:9–10).

In the general NATO discussions concerning the improvement of the strategy of 'flexible response', d'Estaing did not think France should be directly involved. It was, therefore, improper for France to approve the NATO modernization of the Pershing missiles with which it was not associated. All of the NATO countries, excluding France, had proposed to participate in the Strategic Arms Limitations Talks (SALT) negotiations, and there was reason for France to fear that its nuclear forces would be included in these talks. In the past, the Soviet Union considered the French and British forces to be forward-based systems, which would have put them on the agenda. Nevertheless, aware of the need for NATO to keep a balance with the Soviet SS-20s, d'Estaing did not oppose the deployment plans of the Pershing II (Laird, 1985:17).

Under d'Estaing the emphasis shifted from that of the nuclear strength of the French forces and full autonomy to a new emphasis on conventional forces and greater co-operation with NATO. Consistent with the strengthening of the conventional forces, the French Army underwent a restructuring in 1977, reducing 20 divisions to 15; and in 1979, France began conducting large-scale exercises in France outside the regular training areas. Diego A. Ruiz Palmer of the BDM Corporation has said that the 'Type 1977' reorganization 'created to improve the conventional warfare, paradoxically resulted in an army better prepared for nuclear fighting' (1987:485). The armoured divisions, for example, were 'too small and too weak to conduct conventional operations for any significant period of time, but were relatively well configured to exploit nuclear strikes' (Ruiz Palmer, 1987:485).

Giscard d'Estaing said that 'French nuclear forces have been calculated to permit reaching a population of the adversary of the same order as that of our own country. If France were destroyed, our adversary would lose the equivalent of France' (Yost, 1984a:15).

D'Estaing and Eastern Europe

Relations with Eastern Europe were excellent under d'Estaing. France, for example, was able to counter the stagnation of other Western economies in 1974-75 by expanding trade with the Soviet bloc. In 1975, French trade with these countries accounted for about one-fifth of the total growth of French exports. The French commercial deficit would have been twice as large without the East European trade, some analysts have said (Hassner, 1987:205). To maintain the French export level, the country actually made itself dependent on this trade, particularly with the GDR. France also carried out a foreign policy diverging from most other Western countries in the late 1970s.

In an interview on 23 May 1980, Giscard d'Estaing was asked why the French ambassador to the Soviet Union was the only Western diplomat at the reviewing stand of the military parade in Moscow on 1 May 1980, and why d'Estaing shortly afterwards met with Brezhnev at a secret meeting in Poland. The answer was that France had the right 'to have an independent foreign policy without immediately being accused of breaking with Western solidarity' (Draper, 1985:75). The d'Estaing Administration argued that it could be a disaster to 'freeze out' the Soviets from the West. Instead, trade and *détente* were the correct means of pressuring the Soviet Union towards democratization. There was a general assumption that the Soviet Union no longer posed a military threat, and a harmonious relation with the Soviets would also neutralize the French Communist opposition, thereby diminishing the possibility of Communist assumption of power.

III. The Socialists' road to power

During François Mitterrand's first presidential campaign in 1965, he attacked the idea of a French independent nuclear force; and it was not until 1971, with the creation of the Parti Socialiste (PS), that he began to accept the idea of proportional deterrence. In 1972, the PS also accepted formal French membership in NATO (Rudney, 1983:24).

That year, the Socialists and Communists developed a joint program to serve as a basis for a government, if the left should have won the elections. Among the key points of this 'Common Programme' were: renunciation of the six-month compulsory military service, the strategic nuclear deterrent, and the dissolution of the two superpower blocs in order to end the US and Soviet dominance over Europe (Berger, 1982:20).

The Military Programming Law of 1976 had two aspects that the Socialists could not accept: first, d'Estaing attempted to improve the armed forces' capability to fight a sustained conventional war; and second, Méry stated that France should be a part of any European battle, and co-operate with NATO forces (Berger, 1982:21).

Already in 1978, Mitterrand's designated Minister of Defence, Charles Hernu, accused the government of carrying out a secret reintegration in NATO. He criticized the existing plans for the use of the Pluton tactical SRBMs and said that those plans would inevitably lead to the possibility of French forces fighting side-by-side with NATO forces. According to Peter J. Berger, this reflected a fundamental change in the PS (1982:21).

In November of 1977 at a special meeting on defence issues, the PS officially declared its endorsement of the strategic nuclear deterrent. The new PS defence doctrine which emerged emphasized the necessity of an autonomous defence, in opposition to the NATO flirtations undertaken by Giscard d'Estaing. In this sense, it is notable that the PS actually took a traditional Gaullist stance here. From 1977 to 1980, the PS accused the d'Estaing Administration of not allocating enough money for defence and of favouring the conventional forces at the cost of the strategic nuclear forces (Berger, 1982:21).

The PS also distrusted d'Estaing's positive attitude toward the Soviet Union, his own brand of 'Ostpolitik'. The human rights issue made the PS increasingly hostile towards the Soviet Union, and the great Soviet military expansion under Brezhnev became a serious concern to France, for both French interests in Europe and in the Third World. The Soviet Union began a series of military interventions in the late 1970s, particularly in the African region. With perceived improvements in Soviet civil defence, and anticipated improvements in the French offensive capability, French defence policy and targeting doctrine shifted significantly from 1980 (Berger, 1982:21).

In January 1981, the PS issued '110 Propositions for France' as a formal campaign manifesto. One of the points was, as in the 1972 'Common Programme', the dissolution of both NATO and the WTO. The Socialists argued that NATO protected only US interests, and that the d'Estaing Administration stood too close to NATO. The defence programme was not clearly defined, but Charles Hernu hinted before the election at the need to add two nuclear-powered ballistic missile-carrying submarines (SSBN), strengthen the Navy and re-emphasize the strategic deterrent. In several newspapers before the election, Mitterrand stated that 'it was impossible for France to do anything other than assure the defence of its own territory through nuclear deterrence. Any sortie outside her territory would fundamentally contradict that strategy [and] involve us in conflicts that we could no longer control' (Mitterrand, quoted in Berger, 1982:23).

IV. Mitterrand's first term as President

François Mitterrand's first term was characterized by his economic reforms, his constantly affirmed concern about Soviet power in Europe and the coolness of his approach to relations with the Soviet Union. He denounced the Soviet invasion of Afghanistan vigorously, as well as d'Estaing's meeting with Brezhnev in Warsaw prior to the election. The Soviet deployment of the SS-20 and the downing of the Korean civilian flight 007 further strengthened Mitterrand's anti-Soviet sentiments. 'Peace', Mitterrand said, 'depends not on pacifism, but on the balance of forces'. In other words, the USA was no longer the main target for criticism of excess nuclear superiority. The Soviet Union had reached and surpassed nuclear and conventional superiority with the USA and the East–West military balance had to be restored. With the possible drift of the anti-nuclear FRG towards neutrality in mind, Mitterrand officially supported the 1979 NATO decision to deploy the Tomahawk cruise- and US Pershing IIs in Europe in the presidential campaign (Rudney, 1983:26).

Mitterrand made peace with the French communists by naming four low-rank communist ministers in his Administration after he had embarrassed the Communist Party in the Presidential campaign, down-grading it along with the Soviet Union. Nevertheless, shortly after having taken office, Mitterrand made another spectacular anti-Soviet move with the sudden expulsion from France of 47 Soviet diplomats who had been accused of spying.

In some respects, Mitterrand was more Gaullist than d'Estaing. For example, Mitterrand stressed the independence of the French forces from NATO, and refrained from being too critical towards co-operation with the Allies. Although the PS had been critical of the increased military expenditures on the French conventional forces, the first Socialist Minister of Defence, Charles Hernu, acknowledged the fact that the delays in the d'Estaing procurement provisions of the 1976 Military Programming Law were much worse than perceived, and extended this Law a year to meet the quotas that it had established. During Mitterrand's first year in office, the only major change in the structuring of the armed forces from the d'Estaing Administration was the ordering of an additional SSBN. The announcements concerning the mobile missile programme and the development of a neutron warhead were also confirmations of decisions of the d'Estaing Administration (Berger, 1982:23).

Changes in French defence doctrine

Several genuine shifts in French defence doctrine deserve to be underlined. First, new emphasis in announced and operational policy was attached to tactical nuclear weapons. Spending for the armed forces increased with the order of the successor to the Pluton, the longer-range Hadès, and the development of the M4 submarine-launched ballistic missile (SLBM). The allocation for strategic nuclear forces was raised by about 15 per cent, and included the Mirage 2000 aircraft, to replace the Jaguar and the Mirage III (Kolodziej, 1987:79). The term 'tactical' nuclear weapons was dropped and replaced with the term 'prestrategic' so as to mark the political character of the French short-range and intermediate-range nuclear weapons. There was to be an immediate link from the prestrategic to the strategic nuclear weapons, implying French determination to use the latter, thereby further enhancing deterrence. In another very significant move the Pluton missiles were separated from the 1st

Army Corps and placed under a new army unit. Minister of Defence, Charles Hernu, reaffirmed the need for an enhanced strategic nuclear arsenal and announced a cut of 30 000 men from the armed forces to pay for this. Hernu basically wanted to increase the mobility, flexibility and firepower of the French army, which under de Gaulle had also been reduced and largely neglected in favour of the nuclear forces. The 'New Model Army', as Prime Minister Pierre Mauroy called it, differed, however, from de Gaulle's (Rudney, 1983:30).

The second shift in French defence doctrine was the creation of the rapid deployment force, Force d'Action Rapide (FAR), in 1983. This change in official French doctrine is especially interesting in light of Mitterrand's opinions in 1980; that France should only assure the defence of its own territory, and the Socialist refusal in the 1970s to accept co-operation with NATO. Through the creation of the FAR, France took a significant step towards fighting a conventional war alongside NATO forces in the FRG. It was actually not until Mitterrand became President that France declared itself ready to take part in the forward defence of the FRG in the event of war. Mitterrand now regards the territory between the Rhine and Elbe as an indispensable part of France's own defensive system and no longer as a military barrier (Scholl-Latour, 1987:8). By using the FAR, France would not have to decide whether or not to reintegrate its forces into NATO. This way France does not break with the traditional Gaullist policy of independence and can co-operate with the USA (still a genuine ally) within the NATO without risking placement under US control. The Socialist Government was also fully conscious of the fact that the Soviet Union's superior military power in Europe also had political impact on Western Europe. French military co-operation with the FRG was necessary to prevent the FRG's drift towards a more neutralist stance and even its possible reunification with the GDR. Mitterrand also understood that the French all-or-nothing strategy was not entirely credible considering Soviet nuclear superiority over NATO, and French conventional weakness, if the nuclear forces were eliminated in a pre-emptive by the Soviet Union strike. The primary objective of Mitterrand's policy, thus, was to keep US forces in the FRG, thereby binding Bonn to the West and obliging the USA to come to the defence of Europe (Rudney, 1983:35).

De Gaulle's views were widely shared among the French elites and in general by the nation as a whole. The essential approach of de Gaulle's doctrine was to restore a certain military autonomy of decision in defence, largely through an independent military system based on a nuclear force, a semi-autonomous national defence strategy, and a carefully constructed and controlled set of relations with French allies. The flexibility and ambiguity of the defence doctrine appealed to a wide variety of groups and interests. In Mitterrand's PS, where there already existed a wide range of opinions on defence and security questions, the Gaullist security model became a natural point of reference for justifications and explanations (Harrison, 1981:446). Here, the similarities between the PS doctrine and the Gaullist doctrine diminish. The creation of FAR, the Hadès missile, the air-to-surface stand-off missile, Air Sol Moyenne Portée (ASMP), and the neutron bomb make French participation in a forward defence of the FRG quite possible.

Mitterrand's domestic reform package was much more extensive than that pertaining to the military, during his first year in power. The Socialist Government quickly nationalized key industries, implemented great increases in social benefits and decentralized the local governments. Mitterrand, however, saw an opportunity to neutralize most of his opponents in the conservative parties by not changing France's defence policy. The conservative parties even voted for the 1981 Socialist defence budget which, in many ways, was a Gaullist budget. Mitterrand stressed independence from the superpowers and modernization of the nuclear deterrent based on the doctrine of 'national sanctuary'. From 1982, the Socialist economic programme had already become too expensive for France. The franc was devalued several times, and the large trade deficits, especially with the FRG, together with zero growth in the budget, forced Mitterrand to reconsider certain aspects of both the military and social programmes (Rudney, 1983:20–21).

In these hard economic times, the Socialist Government maintained its commitment to the defence budget. The budget increase, in real terms, was estimated at two per cent annually, with the objective of surpassing the level of four per cent of the gross domestic product (GDP) by 1988 (Rudney, 1984:88).

The exuberant macroeconomic expansion which Mitterrand initiated, with widespread nationalizations and extended social benefits was unsuited to the international economic conditions of the early 1980s. To brake the fall of the franc, the socialist experiment of 1981 was reversed.

Mitterrand preserved the previous Gaullist principle of retaining absolute presidential control over foreign policy. The Foreign Minister remained under tight control of the Elysée Palace, and the PS had little influence in the decision making process of foreign affairs. Mitterrand also reaffirmed the doctrine of France's independent deterrent by pointing himself out as being the deterrent: French nuclear forces would never come under any other command but the French President and could not be included in the disarmament talks of the superpowers (Hoffman, 1984–85:42).

The first Mitterrand term was not significantly characterized by French efforts to unify and integrate Europe. It may also point to the fact that, at that point, Mitterrand did not believe that anything would come of such efforts in the early 1980s. Instead, France's first priority in European affairs was to maximize French economic benefits in co-operation with the FRG in the European Monetary System (EMS), as one element.

The 'dual-track' debate

In early 1981, at an election press-conference, Mitterrand announced that France should support the 1979 decision by NATO to up-grade its intermediate-range nuclear forces (INF). What was surprising was not Mitterrand's support of NATO, but that the so-called 'dual-track decision' was a non-issue in the election. The French voters were largely uninterested and, thus, Mitterrand had no votes to gain or to lose. Part of the French peoples' disinterest may be explained simply by the French defence doctrine itself. The classic Gaullist deterrent against Soviet Union with its anti-cities doctrine, provided an entirely different point of view for the French people, than for the people of the USA and the European countries that were to receive the Tomahawk cruise- and Pershing II missiles. As Pierre Lellouche succinctly observed 'whereas the USA and NATO as a whole are struggling with the extremely difficult problem of reconciling the 'operational' and 'societal' elements of deterrence, France has had no such problem' (Lellouche, 1983–84:322). In a French view, the French nuclear deterrent was purely defensive, whereas the Pershing IIs could be used flexibly in a nuclear battle.

Because the Pershing IIs were not slated to be deployed on French territory and because the only real opposition came from the small Communist Party (a peace-movement did not exist such as in the FRG), French domestic criticism of the Pershing IIs was basically limited to the Communist newspaper *l'Humanité*. Mitterrand, however, provoked both the Soviet Union and Western European Socialist parties—especially the West German Sozialdemokratische Partei Deutschlands (SPD)—by intervening in the electoral debate in the FRG in his Bundestag speech of January 1983, favouring the deployment of the Pershing II on West German territory (Lellouche, 1983–84:327). Indeed, this statement reflected France's long-standing defence doctrine: Atlantic military integration may be necessary for the FRG, but it is not for France.

The West German SPD had already, in 1982 and 1983, officially adopted the position that France should in some way include its strategic forces in the INF arms control process (Laird, 1984a:318). The French Socialists were actually taking the verbal lead in supporting the argument that the deployment of the Pershing II in FRG was necessary.

The French Administration itself, in addition to its close co-operation efforts with the FRG, began a very ambitious defence programme of modernization in the following five-year military programme. With his bold stance in the support of the Pershing IIs and the cruise missile deployment, Mitterrand took the opportunity to demonstrate to the NATO Allies that participation by the Communist in his government would not tilt French foreign policy towards the Soviet Union. The offer by Soviet leader Mikhail Gorbachev, during his state visit to Paris in October 1985, to negotiate directly with France and Great Britain on a Eurostrategic balance between their nuclear arsenals and the number of Soviet SS-20s the Soviet Union would be allowed to deploy in its European area, was rejected by both Mitterrand and the British Prime Minister

Margaret Thatcher (Schütze, 1987:78). The modernization of the SS-20 on the Soviet side also represented to the French Socialist Administration a Soviet attempt to separate Western Europe from the USA, and France from its West European partners, particularly the FRG. Mitterrand pointed out that French freedom and security is guaranteed by the Alliance with the USA (Sjöberg, 1983:43).

Mitterrand's strong support for the deployment of the Pershing II missiles in the FRG probably undermined criticism from the USA against French connections with the FRG. In a September 1983 speech by Prime Minister Pierre Mauroy to the Institute des Hautes Études de Défense Nationale (IHEDN), he spelled out the reasons why France could not participate in either the INF negotiation or the Strategic Arms Reduction Talks (START). French nuclear weapons, he said, constitute a completely independent strategic force; by definition, they are not intermediate-range forces, but weapons of last resort. The French nuclear panoply constituted an indissoluble whole and because France limited its forces strictly to 'a threshold of nuclear sufficiency', it could not accept any restriction on the modernization of these forces (George and Marcus, 1984:152).

V. The second Mitterrand term

With the re-election of François Mitterrand and his designation of Jean-Pierre Chevènement as Minister of Defence, there was a tendency to reinforce the concept of 'pure' deterrence (refusal to engage in battle), as opposed to those who advocate a more ambiguous, if not quite 'flexible' nuclear policy. An indirect effect of the INF Treaty and the US withdrawal of intermediate-range nuclear missiles has been that France is left as the only European power with a comprehensive tactical and strategic arsenal, giving it an 'enhanced political role' (*Revue Aérospatiale*, 1987:29).

Ties between France and the USA had grown very strong in the first half of the 1980s. President Reagan characterized the Soviet Union as the 'the evil empire' and President Mitterrand took a strong stance against the Soviet Union, denouncing its military superiority and weapons build-up, as well as its negative record on human rights. However, after the Pershing IIs had been deployed, France did not seem to be overly concern about the European military balance.

In the second half of the 1980s, French concerns over the possibility that a socialist government in the FRG would drift towards neutrality was reduced when the conservatives won the January 1987 election. The USA, at the same time, had presented the Strategic Defence Initiative (SDI) programme, which reignited France's concern over the military balance, its own deterrence and its reduction to a sub-contractor instead of the global power it claimed to be. When the leaders of the superpowers went over the heads of the West European nations at the Reykjavik summit meeting in 1986 and the USA was immersed in the Iran–Contra scandal, France revived the negative Gaullist image of the USA. At the same time, the view of the Soviet Union was much improved with Gorbachev's programme of *perestroika* and *glasnost*. In 1984, Mitterrand had actually already visited Moscow, not because French prerequisites for a meeting had been met—Soviet forces out of Afghanistan and changing of conditions in Poland—but to show the USA that France could have a dialogue with the Soviet Union even when the USA could not (Hoffman, 1984–85:43).

France also suffered from its own version of the Iran–Contra scandal, the 'Luchaire Affair', in which a French the company had shipped 500 000 shells to Iran in 1987. Apparently, the French Government had authorized illegal arms sales to Iran between 1982 and 1986. Revenues were, allegedly, also diverted to the PS from these sales. Generally, arms exporters must negotiate rather complicated bureaucracy before they receive official authorization for sales. In practice, however, it is possible for a company to circumvent the rules by using false documents and having the proper connections in the government (Davidson, 1987:18).

In the Presidential election of 1986, the dual-track was still not an issue. Mitterrand's support of the INF modernization had not met much criticism in France and, although he had been a NATO advocate for many years and opposed France's withdrawal from the military wing of the Alliance 20 years before, there was little doubt as to where he stood on the question of France's independence towards NATO in 1986 (McCausland, 1986:441).

The co-habitation years

In the election to Parliament the same year, it was the neo-Gaullist party Rassemblement pour la République (RPR), led by Jaques Chirac, which won, and the so-called 'co-habitation' period started. Between 1986–88, France found itself with a President, as the Commander-in-Chief, in opposition to a Prime Minister who was constitutionally responsible for the national defence. Chirac openly supported increased co-operation with NATO allies (especially with the USA) and criticized the Socialist Military Programming Law for 1987–91 as being unrealistic and constructed in a manner that would create a huge spending bulge in the mid-1990s. Mitterrand and Chirac also argued over the composition of the armed forces, with the former strongly defending de Gaulle's deterrence doctrine and the latter favouring a policy of lesser independence and closer allied co-operation.

The dispute between Mitterrand and Chirac also concerned more specific nuclear issues. The Prime Minister wanted land-based tactical weapons to serve a dual role: as a weapon of final warning and as a system to be used on the battlefield. Mitterrand, on the other hand, rejected any battlefield use of nuclear weapons. Chirac also wanted to replace the ageing silo-based S3 intermediate-range ballistic missile (IRBM) with the S4 mobile IRBM. Mitterrand also rejected this proposal, favouring a priority on the submarine fleet instead (Berger, 1989a:78).

Present defence doctrine

The first Mitterrand Administration emphasized continued priority of the nuclear forces and the classic 'anti-cities' doctrine. However, the relation between nuclear deterrence of an attack on France and under which circumstances French forces might participate elsewhere in Europe—i.e. the FRG—was left deliberately ambiguous. The deployment of the Hadès missile and the development of the FAR pointed to the possibility of French forces fighting alongside NATO forces in a forward battle. The facts remained, however, that the French nuclear deterrent under no circumstances could be extended to cover the other West European allies and that French forces do not have an automatic commitment to fight in the FRG (DePorte, 1984:151).

The successor to Chirac, Prime Minister Michel Rocard, does not believe France could give up any of its four existing military missions: nuclear deterrence, home-defence, European defence and out-of-area force projection (Davidson, 1989:2).

The current defence doctrine is based on the strategic nuclear deterrent of the French forces, the SSBN fleet providing a second strike capacity. French forces participate increasingly often in NATO and bilateral manœuvres but remain under French command. Growing co-operation with the European allies suggests that France aspires to influence the European portion of NATO, particularly because the threat from the WTO is diminishing rapidly and the legitimacy of US troops in Europe is decreasing. France's possible nuclear collaboration with Great Britain, and its relations to the FRG and a possible successor to NATO—a European defence structure—are discussed in separate chapters.

Mitterrand and Eastern Europe

In 1988, Mitterrand became the first Western leader of a signatory to the Four Powers Agreement of 1945 to meet the leader of the German Democratic Republic. In November, Mitterrand visited the Soviet Union and discussed the launch of the second French–Soviet space mission. He also signed an agreement allowing for the creation of a line of credit from a French banking consortium to the Soviet Union and for the establishment of a joint venture in the construction of an aluminium plant in Armenia (*Europa Yearbook*, 1989:1010).

Mitterrand's Minister of Defence, Jean-Pierre Chevènement, went to the Soviet Union in the spring of 1989, where it was decided that France and the Soviet Union will sign a draft treaty leading to exchanges of military personnel both from operational formations and at staff officer levels. The treaty will also contain an agreement designed to prevent incidents at sea between the two navies, similar to those already signed between the Soviets and other Western navies (Isnard, 1989f:689).

In the summer of 1989, France and the Soviet Union signed 21 economic and cultural agreements, including co-operation in oil exploration and the development of high definition television. One of the agreements stipulates that repatriation of profits in hard currency must not exceed the amount of hard currency investments made by French firms. The rest has to be brought back to France through barter arrangements. The number of agreements are about the same as between the FRG and the Soviet Union, but far below the number of arrangements existing between the Great Britain and the Soviet Union (Pick, 1989:4).

Although Mitterrand has stated that he is not afraid of German reunification, it is of particular interest to consider how he has picked up de Gaulle's approach to the Soviet Union in this matter. De Gaulle desired a pact with the Soviet Union to assure the neutrality of Germany. In meetings with Gorbachev, Mitterrand has supported German reunification, but also mentioned the old Franco–Russian role in 'preserving equilibrium in Europe' (Hoffman, 1990:19). If the USA withdraws from Europe, then is it not possible that France may seek some kind of security agreement with the Soviet Union? It may not be necessary. France is probably most concerned with the prospect of a unified Germany becoming a giant economic power and will try to control this power through the framework of the European Community (EC). France is also likely to maintain its soldiers in the FRG, whereas the Soviets have already been asked by other Eastern European states to withdraw their forces. Furthermore, the Soviet Union may very well be forced out of the GDR as well, thereby reducing French concerns over a WTO attack even further (*Svenska Dagbladet*, 1990:4).

Disarmament negotiations

After 1945, France established very restrictive criteria for its participation in any kind of arms control and disarmament talks. From the early 1960s, France boycotted disarmament verification which did not correspond with certain criteria. First, the negotiations could not concern limitations of production, but had to address the issues of genuine reductions of arms. Second, the meetings had to involve all nations, including the superpowers, and be non-discriminatory in that they could not deny some countries capabilities that others already had—which, of course, concerned France in particular. Third, there had to be a credible and effective way of verifying the agreements (Yost, 1984b:35–36). Many times, France has excused its 'non-appearance' at disarmament talks citing these criteria. This was the case, for example, during the negotiations at the Eighteen Nation Disarmament Committee in Geneva in 1962, the Partial Test Ban Treaty (PTBT), the Non-Proliferation Treaty (NPT),

Table 2.1. International treaties.

Signatories	Treaties[a]				
	Geneva Protocol	Antarctic Treaty	PTBT	Outer Space Treaty	NPT
France	•	•	-	•	-
USA	•	•	•	•	•
USSR	•	•	•	•	•
UK	•	•	•	•	•
FRG	•	•	•	•	•
China	•	•	-	•	-

	Sea-Bed Treaty	BWC	Enmod Convention	'Inhumane' Weapons Convention
France	-	•	-	P1, P2
USA	•	•	•	-
USSR	•	•	•	•
UK	•	•	•	-
FRG	•	•	•	-
China	-	•	-	•

[a] Abbreviations refer to Partial Test Ban Treaty (PTBT), Non-Proliferation Treaty (NPT), Biological Weapons Convention (BWC), Environmental Modification Convention (Enmod), Protocol 1 and 2 (P1,P2) to the 'Inhumane Weapons' Convention.

Source: SIPRI (1990:Annexe).

and the Biological Weapons Convention of 1972, which France finally signed in 1984. France, however, did become a party to the Antarctic Treaty of 1959 and the Outer Space Treaty of 1967, and proposed the First Special Session on Disarmament (SSOD1) at the UN in 1978. France refused to let its nuclear forces be included in the SALT process but strongly approved of the Mutual Force Reductions negotiations between NATO and the WTO, in Vienna. In terms of bilateral negotiations, France has behaved quite differently and has signed numerous agreements with all of its allies both in and out of Europe. In 1976, France also signed a bilateral agreement with the specified potential aggressor, the Soviet Union, on the accidental or unauthorized release of nuclear weapons. This agreement is very similar to the agreement between the USA and the Soviet Union.

Mitterrand opposes any decision to dismantle NATO's tactical nuclear weapons until at least 1992. In the meantime, the priority should be negotiations on a reduction of conventional arms, with the West demanding 'concrete and precise' guarantees from Moscow. He warned against moving too quickly in judging the evolution of President Gorbachev's policies (Webster, 1989b:5).

In April 1989, Minister of Defence Jean-Pierre Chevènement rejected Soviet disarmament negotiator Viktor Karpov's suggestion that the French Pluton missiles should be included in the SRBM negotiations (*Air et Cosmos*, 1989:8). In May, President Mitterrand also rejected the same proposal for the Hadès missile, the successor to the Pluton (Mitterrand, 1989:16).

Initially the NATO Lance missile was to be modernized by 1992, but due to political and budgetary reasons NATO will instead propose an airborne nuclear deterrent. If Germany is unified, the Soviet Union is expected to propose a total elimination of all land-based nuclear weapons in Europe. France would then find itself alone with its Hadès SRBM which is scheduled for entry into service in 1992, and the subject of hard pressure from the Soviet Union not to deploy. A hypothetical Short-Range Nuclear Forces (SNF) Treaty between NATO and the WTO following the CFE-1 negotiations would create significant problems for France. If it signed such a treaty, France would have to transfer its prestrategic system to an airborne system, or take away its 'final warning' capability entirely, creating new missions for its strategic forces. The CFE negotiation may also result in some reductions in force levels for France, force deployment in the FRG, on-site inspection regimes of arms production and advance notification of military movements in and out of the Atlantic to the Urals region. Jean-Pierre Chevènement has indicated that the effect of a prospective CFE treaty on France in terms of reduction of forces is still unclear. The treaty, however, would not bring about any substantial changes in France's level of arms, because the French concept of defence and deterrence has not changed, according to Chevènement (Lewis, 1990a:217).

Speaking to the IHEDN in June of 1989, Mitterrand devoted half of his speech to questions on disarmament. He outlined three conditions for French participation in nuclear disarmament talks with the superpowers: (a) the US and Soviet arsenals must be reduced to a level equal to the French; (b) the anti-missile, anti-satellite and ASW arms race must be stopped; and (c) the imbalances in conventional forces must be redressed (Berger, 1989:80).

Mitterrand's policy during his second term has been to emphasize *détente*, disarmament and European co-operation. In reality, this apparent shift from his first term, with its emphasis on defence and commitment to the Atlantic alliance actually reflects a long-term continuity of Mitterrand's pre-1981 positions and Gaullist-traditions combined with an updated perception of the European security environment (Berger, 1989a:78).

3. Nuclear testing and French presence overseas

I. Introduction

France bases its claim to be a medium-sized power on two major rationales: the possession of an independent nuclear force and the maintenance of a global military presence stretching from francophone Africa to the South Pacific. After the Second World War, France granted independence to most of its former colonies. After prolonged fighting, Laos, Cambodia and Viet Nam became fully independent in 1954. In Africa, most of the French colonies became independent in the early 1960s, but have retained close political and economic ties to France.

Mitterrand has often declared his support for the rights of Third World countries; and although he has gradually come to accept bipolarity in Europe, he denounces it elsewhere. Mitterrand rejects the view that wars and revolutions in the Third World should be addressed mainly as emanations of the East–West contest, which is a common refrain heard from the US side. To the contrary, Mitterrand has said that these states 'are born first from misery, exploitation and totalitarianism before becoming, unhappily, the stake of East–West conflicts' (DePorte, 1984:158).

II. The South Pacific

Since February 1960, France has conducted an extensive programme of nuclear experiments, first in the Sahara (until parts of that territory were incorporated into the newly-independent Algeria in 1962) and then from 1966 in French Polynesia on the atolls of Moruroa and Fangataufa near Tahiti (Isnard, 1988f:19).[1] Opposition against atmospheric testing from the smaller Pacific states, New Zealand and Australia culminated in 1973 with a widespread boycott of French goods and transportation. The same year, the two latter states also brought France to the International Court of Justice at the Hague with the question of atmospheric testing (Danielsson, 1990:26). In the summer of 1975, the French Government finally announced that future nuclear tests would be conducted underground. Thus, France complied with the 1963 Partial Test Ban Treaty (PTBT), without, however, becoming a party to it (Schütze, 1987:73). Up until that time, France had conducted 41 atmospheric tests at Moruroa and

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[1] According to the Swedish anthropologist Bengt Danielsson, the first French commanding officer got the name of the test site wrong; and the French authorities have since kept the misspelling 'Mururoa', refusing to admit its mistake (1990:24).

Fangataufa (Borg, 1989:517). Breaking with past practice, French Foreign Minister Roland Dumas announced that the number of nuclear tests France had conducted during the previous 12 months would be announced at the end of each year (Dumas, 1988:47). In August 1989, Prime Minister Michel Rocard announced that the number of nuclear tests would be reduced from eight to six during 1989 (Andréani, 1989:10). By December, however, scientists in New Zealand reported that a nuclear device of at least 30 kt (kiloton) yield had been detonated at the Moruroa atoll: the seventh reported French test in 1989 (*Jane's Defence Weekly*, 1989m:1211).

In November 1988, the Cousteau Foundation published a report on the Moruroa atoll nuclear test site. The report stated that the tests posed no health risk to the residents, which is what the Centre for Experimentation in the Pacific and Atomic Energy Commission have long asserted. The USA, which carried out 106 nuclear tests in the Pacific from 1946 to 1962 , supports the French programme as being environmentally safe and strategically necessary (Borg, 1989:517).

In response to criticism from several organizations and countries that the Moruroa atoll basin was severely damaged because of the underground nuclear explosions and to 'increase safeguards against leakage of radioactive material', France moved some of its nuclear tests to neighbouring Fangataufa. Australian officials claim that they have monitored nuclear explosions from Fangataufa already in the late 1970s. In 1988, seismic monitoring stations at New Zealand and Australia recorded about 90 explosions from the Moruroa atoll. Although French relations with Australia and New Zealand are strained because of the nuclear testing in the South Pacific, an independent team of scientific experts from the latter two countries could not detect any radioactive leakage on inspection in 1983 (Richardson, 1989:2). In December 1989, 110 French tests had been reported since 1975 (*Jane's Defence Weekly*, 1989m:1211).

On 10 July 1985 in New Zealand's Auckland harbour, Lieutenant Colonel Alain Mafart and Captain Dominique Prieur, agents of the General Directorate for Foreign Security, planted two mines on the Greenpeace ship, *Rainbow Warrior*, which was supposed to conduct a vigil that included protests at the Moruroa atoll, coinciding with the 40th anniversary of the bombing of Hiroshima. A Greenpeace photographer was killed when the mines exploded prematurely. French officials later admitted to the authorization of the action, which eventually led to Minister of Defence Charles Hernu's resignation. The two agents have been released from prison in New Zealand and transferred back to France (Borg, 1989:517).

Middle East terrorist activities, and pacifist and anti-colonial opposition to a French presence in the South Pacific have exposed the inevitable vulnerabilities France faces in maintaining its status as a power. These changes have underscored the political and diplomatic costs of conducting a highly visible foreign policy at a time of growing discrepancy between goals and means. France is also concerned about the stability of the military alliance in the

Pacific region—the pact between Australia, New Zealand and the USA (ANZUS)—which is sensitive to the political currents in this area (Moïsi, 1988:152–62).

If the French Administration loosens its grip of the South Pacific, then it would also lose access to undersea riches of a surface equivalent of 14 times the size of France's national territory, and the only location where France can conduct its nuclear tests, outside of its own territory.

The islands of New Caledonia located west of the Tuamotu Archipelago, have charged France with neo-colonialist objectives. These islands are of great strategic significance to France in that they possess about 30 per cent of the world's known reserves of nickel and are one of the largest producers of metal. The 150 000 inhabitants are divided between Europeans (about 40 per cent) and native Kanaks (about 45 per cent), with the remainder composed of Asian and Polynesian immigrants (Moïsi, 1988:161). The Kanak nationalist movement has violently opposed French dominance of the islands, and separatists demand total independence. Prime Minister Rocard successfully proposed a plan in November 1988, in which France resumes direct control of the New Caledonian territory for one year as the beginning of a 10-year transition period until 1998, at which time a national referendum in the islands will decide the question of self-determination. In 1988, France maintained a force of 9500 in New Caledonia and 5000 troops in the Tuamotu Archipelago (*Europa Yearbook,* 1989:1072 and 1077).

Because France could not ask for assistance from any allies and considers itself unable to execute nuclear tests on its own territory, nuclear testing sites were constructed in Algeria and the South Pacific. In addition, missile development centres were established in France, Latin America and in the Azores, and facilities for the plutonium industry were established in Marcoule and in Pierrelatte (for enriched uranium). Recycling centres were also established at La Hague and Marcoule (Kolodziej, 1987:87).

III. The African impact

With the loss of Algeria in 1962, France completed its withdrawal from all of its former colonies in Africa. However, France still maintains contacts with its former colonies through bilateral and multilateral security accords, and diplomatic, monetary, postal, cultural, trading and development relations.[2] The former colonies also agreed (except for Brazzaville [formerly Congo], Guinea, Mali and Burkina Faso [formerly Upper Volta]), in 1965, to permit the stationing of French forces, overflights, landing and transit. To further stress France's seriousness in francophone African affairs, a special envoy to the French President for African affairs was appointed (Kolodziej, 1987:373).

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[2] Cameroun, Benin, Ivory Coast, Niger, Mauretania, Senegal, Togo, Central African Republic, Brazzaville, Gabon and Djibouti) (Keegan, 1983:189).

Table 3.1. French forces stationed in Africa.

Country	Total
Central African Republic	1200
Chad	1900
Djibouti	3900[a]
Egypt	40[b]
Gabon	550
Ivory Coast	500
Senegal	1200
Total	**9 290**

[a] Includes one regiment of the Foreign Legion.

[b] Multi-National Force and Observers (MFO).

Sources: Compiled from IISS figures (1989:62).

Increased activity in the Horn of Africa and in Angola on the part of the Soviet Union prompted d'Estaing to increase French economic and military assistance to Africa. Between 1977 and 1978, French military assistance increased from $84.3 million (FFr 414 million) to $131.1 million (FFr 644 million), reaching over $89 million (FFr 800 million) in 1985 (Kolodziej, 1987:374). French troops are stationed in seven African countries (see table 3.1).

That these bases are extremely critical to both France and its allies was illustrated by the Falklands War, in which Great Britain used the French naval base in Dakkar, Senegal. The creation of the French rapid deployment force in 1983 also points to the French commitment to employ forces in African allied countries in a time of crisis. French military intervention in Africa has included activities in Mauretania in 1978 to protect French technical assistants; in Zaire, to protect French nationals and European technical assistants against Katangese elements; in Chad, to help maintain internal order; in the Central African Republic in 1979 (the overthrow of the Bokassa regime); again in Chad between 1983–86 to control Libyan influence and support Hissene Habré forces; and in Togo in 1986 to help establish internal order (Kolodziej, 1987:377).

Chad gained its independence from France in 1960, although it has continued to receive French military support. A civil war in Chad was further complicated by the presence of Libyan troops in the northern part of the country. In 1983, after many months of delay (because Mitterrand did not want to appear as the *gendarme* of Africa) French forces were deployed to Chad in 'Operation Manta'. Mitterrand also had reason to believe that other neighbouring African states, fearing to be involved in the Libyan–Chad conflict, would turn to the USA for assistance—the Presidents of the Ivory Coast, Senegal and Zaire all went to Washington in 1983 (DePorte, 1984:162). After a secret meeting with Colonel Qaddafi in Crete in 1984, it was decided that both Libya and France would simultaneously withdraw their forces from Chad. However, US AWACS aircraft showed that Libya cheated on this agreement, and France suspended its troop withdrawal. In September 1987, Habré's forces finally defeated the Libyan forces and achieved a cease-fire. French civil and military co-operation with Chad now absorbs about $82.7 million (FFr 500 million) a year. Direct assistance, in the form of armament supply and overhauls, amounted to $19.7 million (FFr 120 million) in 1987, or nearly a third of the entire assistance budget. In 1988, about 1800 French soldiers were stationed in Chad, a decrease from 2500 in 1987. By 1990, the French military presence is planned to be reduced to 800 troops (*Jane's Defence Weekly*, 1990f:376). France's military commitment was underwritten in the Franco–Chadian Exercise 'Epervier', at the rate of $198 million (FFr 1.2 billion) a year (Schwartzbrod, 1988b:50–52). Libya has been both a benefactor of French arms industry and a supplier of oil for France's energy-needs, at the same time being a heavy burden for France both militarily and diplomatically. Mitterrand, however, has at no time shared the Reagan Administration's early obsession of Libya as an enemy. France, for example, refused to permit US aircraft overflights during their the bombing raid on Libya (Harkavy, 1989:10).

France's concern for Africa's economic development has been very important and a consistent significant element in French foreign policy since the 1950s. As opposed to other Western states, France has declined to increased military spending by former colonies, in favour of their economic development. Through the Yaounde and Lome agreements, France has strongly encouraged trade concessions to the African states. President Mitterrand is also recognized for his extensive travel to Africa and his meetings with African heads of state to emphasize French commitment to assist these countries in their development efforts (Kolodziej, 1987:373).

Increased interest from the EC in Africa has decreased French influence in the region. Italy, the FRG, Great Britain and Belgium are strong competitors to extend credits to African states with new markets. France, however, has shifted its policy to increase aid and economic assistance to include other African countries than solely the francophone, moving progressively from bilateral to multilateral assistance. This would increase French global competitiveness, open new markets and encourage risk-taking and initiatives by French firms outside the narrow francophone region (Kolodziej, 1987:383).

Indeed, French security is dependent on its connections with Africa. It is the only major geographical region where France has been consistently able to show a trade balance surplus. Nearly all of France's uranium for its independent nuclear weapons industry comes from Africa (Southern Africa, Niger and Gabon); a third of its copper comes from Zambia and Zaire; and about one-third of its total oil imports (Chipman, 1985:2). With growing activity by the Soviet Union on the African continent, Mitterrand has had reason to reassert French involvement in at least the francophone states, to be able to influence them not to drift towards the Soviet Union. The creation of the FAR in 1983 was an important step to show French resolve to quickly come to the aid of African as well as European allies in time of crises. Mitterrand, however, did establish the principle, that any military involvement in Africa would take place only at the express desire of an African leader and preferably in conjunction with African forces. France would honour its defence agreements but would never use its power to force a solution to internal disputes (Chipman, 1985:14; and *The Economist*, 1989:49–50).

Franco-South African collaboration

According to SIPRI researcher Signe Landgren, France has provided technical expertise in nuclear physics to South Africa since 1966, and has trained South African scientists (1989:158). During the 1960s, France carried out a policy of 'arms for uranium' with South Africa, and supplied 45 per cent of South Africa's total arms imports between 1965 and 1969. This included Mirage III fighter aircraft with air-to-surface missiles and Daphne class submarines (Landgren, 1989:42). Because of the oil boycott in 1973, South Africa prioritized nuclear energy, and the French company Framatome SA won the first contract of South Africa's nuclear programme in 1976. This immediately set off rumours around the world of French assistance in helping South Africa to establish a nuclear weapons capacity. US government officials stated in 1977 that South Africa would have such a capability in 1981 (Landgren, 1989:160). France was one of South Africa's main suppliers of arms in the 1960s and 70s, and South Africa also manufactured French weapons on license: for example, the Crotale/Cactus and Exocet missiles (Landgren, 1989:92). In 1978, South African Prime Minister P. W. Botha described the Franco–South African relations as close to a military alliance. The same year, however, President Giscard d'Estaing tightened the original 1963 UN embargo on selling weapons for internal oppression because of a promise in his 1974 electoral campaign also to cover land and air arms (Landgren, 1989:210-11). In 1985, because of pressure from French African allies and increasing internal political pressure, France, as the first Western Security Council member to do so, called for trade sanctions against South Africa in the UN Security Council and withdrew its ambassador from the South African capital in 1986 (Landgren, 1989:212). Continued military co-operation, however, has allegedly taken place, particularly in the upgrading of South Africa's fleet of Mirage III fighter aircraft and French covert assistance in the development of a South African combat helicopter (Landgren, 1989:76-77).

IV. French connections to Latin America

France has long tried to break the US dominance over Latin America. It was basically France that opened this region to the global arms supply network. France has shown no remorse in selling arms to the Latin American dictatorships, although these sales have been an embarrassment for successive French governments. It was, however, de Gaulle's tireless attempts to bend US influence over Latin America and to speak of independence and self-determination that started the arms exports. Mirage fighter aircraft were sold to Peru in 1968, and France bought Xingu planes from Brazil, as a part of a greater military assistance and industrial co-operation strategy to link French arms and industrial plants with a modernized Brazil. In 1982, France and Brazil signed a technical assistance accord for the Brazilian Navy. In the 1980s, France has received strong competition from the FRG, Italy and Great Britain but is still the major European arms supplier to Latin America. Israel, however, has replaced France in selling arms to Central America (Kolodziej, 1987:384–85). Mitterrand halted French sales to Chile, but found that Spain was instead selling French equipment on license. Mitterrand has also tried to justify a French sales of arms to military regimes by putting the sales into two separate categories: one for arms for suppression and one for external defence. Thus, France was the largest supplier of arms to Argentina for the five years preceding the Falklands War, finding its own Mirage aircrafts and Exocet missiles legitimately used by Argentina to sink the British destroyers *Sheffield* and the *Atlantic Conveyor*. France supported an EC ban on Argentinian imports and exports and imposed a total ban on arms and spares, but lifted this ban only one month after Great Britain had retaken the Falklands, much to the irritation of the British (Kolodziej, 1987:386–88).

In 1981, Mitterrand resurrected de Gaulle's approach to Latin America through the Franco–Mexican declaration of support for revolutionary forces in El Salvador. Some political analysts argue, however, that Mexico used France for its own purposes in this instance, given the fact that nine Latin American countries denounced the declaration, among them Venezuela which is normally moderate and pro-French (Moïsi, 1981-82:354). The same year, France also provided arms to Nicaragua.

Under current debate is a possible French violation of a seven-nation agreement to limit the proliferation of ballistic missiles, the Missile Technology Control Regime (MTCR). France has offered blueprints and components, vital to produce these kinds of weapon systems to Brazil and has threatened to withdraw from the MTCR if the US Congress passes any bills to toughen the regime. France does not favour any change in the MTCR which dates in its current form from 1987 (Silverberg, 1989a:4; and Silverberg, 1989b:31).

V. The French overseas possessions

On March 1946, the French colonies of Guadeloupe, French Guiana, Martinique and Réunion each became overseas *Départements* of France, with the same status as the continental *départements*. The islands of Mayotte and Saint Pierre et Miquelon became *collectivité territorial* in 1976 and 1985, respectively (Paxton, 1989:503). Overseas territories are New Caledonia, French Polynesia (with the nuclear testing sites), Wallis and Futuna, and the French Southern and Antarctic Territories.

French Guiana, which possesses an excellent location for space research, has become one of the most important overseas areas for France. The base of the European Space Agency (ESA) is located near Kourou (operational since 1979), and is the launching site of all French satellites including the multinational Ariane rocket programme and the SPOT, Helios and Hermès satellite programmes. In 1988, France maintained a military force of about 8000 in French Guiana and the Antilles (*Europa Yearbook,* 1989:1051).

La Réunion, located in the Indian Ocean, is the home base for the French Navy in that region. It is an extremely important strategic outpost for France in the maintenance of its global military presence.

4. Military co-operation

I. Organizations

After the Second World War, France once again found itself occupied by Germany. There were strong French political sentiments to find a way to forever neutralize Germany and, at the same time, to keep the two new superpowers, the Soviet Union and the USA from deciding the future for Europe. In 1950, a year after NATO was formed, the Pleven Plan was proposed which represented a French attempt to counter the US demand for immediate German rearmament (the USA had been forced to reassess the Western security requirements after the unexpected outbreak of the Korean War). France simply wanted to delay indefinitely German rearmament, arguing that this should take place only within an integrated European military force responsible for a unified European political authority (McGeehan, 1985:116–17).

The Pleven Plan did not survive the increasing US pressure to solve the German rearmament question. In 1952 the European Defence Community (EDC) was established, laying the groundwork for European Political Co-operation (EPC). France would not have any control over the German question under the EDC Plan and, eventually, France rejected it in 1954. The question of a rearmed Germany was solved when the FRG joined the Western European Union (WEU) and, thereafter, NATO. Subsequently, a number of bilateral treaties and multinational organizations have been added to facilitate and deal with European questions in arms control, arms trade and research and development among others, but no organization has been able to create a unified defence concept for Europe.

The 1957 Treaty of Rome, which established the European Economic Community (EEC), specifically excluded the area of defence. In 1961, France proposed the Fouchet Plan to the EEC members, to form a confederal supranational union with a common defence and foreign policy. Because of its obvious break with NATO and the USA, the Plan was rejected; and after its failure, France decided to go its own way. In 1966, France withdrew from the integrated military command of NATO.

On several occasions in 1973, French Foreign Minister Michel Jobert proposed a revival of the WEU as a vehicle for European political and military co-operation. Great Britain had joined the EEC the same year and the USA and the Soviet Union had just entered a period of detente. Hence, Jobert's proposal was met with a lukewarm response by the other EEC members and was rejected the following year.

The Single European Act (SEA) was ratified in 1985 by the European member states and a deadline in 1992 was set up for the completion of a common market with the free flow of money, goods, services and people. The SEA also differed from the Treaty of Rome in that it had an amendment calling for the member states to maintain 'the technological and industrial conditions necessary for security' (SEA Article 30.6 (b), 1985:28). However, the SEA does not contain any provisions for defence to be included in the EEC, which may create problems for most of the the bigger defence companies which also have large civilian business that will be covered by 1992 regulations (Evans, 1988:11).

The IEPG and EUREKA

France is a member of the Independent European Programme Group (IEPG) which was set up in 1976 to facilitate rationalization of defence equipment procurement and to promote weapons standardization and military programmes co-operation. In 1985, the IEPG was strengthened through the upgrading of its meetings to a ministerial level. The group consists of the 13 European members of NATO except Iceland (which does not have any armed forces) and Luxembourg. Because the IEPG works outside of the NATO organization, the USA has neither influence nor control over it and makes the IEPG a potentially strong base for a European arms market. However, the organization is supposed to 'foster closer and more balanced armaments co-operation with North America' (Roper, 1987:55).

In 1985, France proposed through the framework of the IEPG the creation of the European Research Co-operation Action, commonly known as EUREKA, as an answer to the Reagan Administration's SDI programme. During President Mitterrand's visit to the USA in May 1985, he told President Reagan that France would not participate in the SDI programme, perceiving it as a potential threat to France's doctrine of an independent nuclear deterrent, and that France did not wish to be reduced to a 'sub-contractor' (Jasani, 1987:49). French policy makers did not appreciate the Reagan Administration's characterization of nuclear weapons as being immoral or providing an inferior deterrence: after all, this contradicted the characteristics of France's doctrine of nuclear deterrence directly. France however, did not forbid French companies to take part in the bidding, and the Récherches et Études d'Optique et de Sciences Conexces (REOSC), for example, won two SDI contracts. Matra, hired to study sensor constellations, was the first French company to sign a contract directly related to the SDI programme. Other French firms have since joined the SDI programme (Schwartzbrod, 1989a:40).

Another reason France proposed the EUREKA programme was the fear of falling behind in technological R&D and, thus, falling behind both the Japanese and the USA in terms of both commercial advantages and 'brain drain' of top scientists and technologists. Mitterrand, speaking to the Dutch Parliament on 7 February 1984, said that if Europe launched 'its own space station, allowing it to observe, transmit and consequently avert all possible threats, it would have taken a big step towards its own defence'. In this speech, Mitterrand also hinted at a possible European anti-ballistic missile (ABM) defence system, which was confirmed in more detail in November 1985 (Schwartzbrod, 1989b:49).

However, the response from the other European heads of state to the anti-ballistic missile defence idea was rather cool which led France to abandon the idea to duplicate the US SDI concept and also invited the non-members of the EEC to participate in the EUREKA. In June 1985, Foreign Minister Roland Dumas said that the EUREKA programme was primarily civilian in spirit but would also contribute towards increasing Europe's ability to assume responsibility for its own security. After all, the EUREKA programme includes elements of military character: artificial intelligence, fifth-generation computers, sensors, and space and laser technologies (Schwartzbrod, 1989b:50). In October 1988, French Minister of Defence Jean-Pierre Chevènement said that the EUREKA programme was 'also suited to meet the military requirements of our European neighbours' (Berger, 1989b:88).

The 1986 IEPG study 'Towards a Stronger Europe' recommended the implementation of certain elements necessary for a future European common arms market to function. Based on these recommendations, a plan was then put into effect in 1988 to accelerate the process for this arms market, including the elimination of trade barriers in the arms sector towards the future European Arms Market, the extension of this market to also cover less developed arms industries, of such countries as Greece, Turkey and Portugal, and its exploitation and co-ordination of European resources and research activities (Roesler, 1989:39).

Prime Minister Michel Rocard has proposed to several European counterparts the creation of a European equivalent of the US Defence Department's Defense Advanced Research Projects Agency (DARPA), to stimulate even greater European defence research and development co-operation so as to improve IEPG's competitiveness. France has criticized the IEPG on several occasions for its slowness in co-operative undertakings and for its lack of diversity of technology among the member nations (Fouquet, 1989a:632).

At the 28 June 1989 IEPG meeting in Portugal, the defence ministers of the 13 member nations officially adopted a French proposal to launch the European Co-operative Long-term Initiative for Defence (EUCLID). This programme was constructed to avoid protectionism within the European Community (EC), and emphasized the development of advanced technology in critical areas, such as radar, simulation, integrated avionics and artificial intelligence (Roesler, 1989:37; and de Briganti, 1989d:25).

So far not one IEPG project has reached full-scale development. The Future Large Aircraft (FLA) promises to be the first, however. France, together with Great Britain, the FRG, Italy and Spain, will need a total of 300-400 units of this transport aircraft which is expected to enter service around the year 2000 (Cook and Sweetman, 1989:1155).

The Western European Union

With the devastating Second World War behind them, the Western Allies signed the Brussels Treaty in 1948 which laid the foundation for EDC. In turn, this organization became the WEU in 1954 with France, the FRG, Italy, Great Britain, Belgium, the Netherlands and Luxemburg as members. The WEU specifically was designed to discuss defence matters in a European perspective, but was soon overshadowed by the dominant EEC and NATO. The WEU had difficulties in agreeing on security issues at this time, and with the powerful US influence over NATO, the WEU entered a dormant stage from the mid-1950s..

In 1973, French Minister of Foreign Affairs Michel Jobert proposed several uses for the WEU as a vehicle for an enhanced political and military role for an independent Europe (McGeehan, 1985:116). The other members turned down the offer, arguing in favour of NATO as the correct body for these issues. In October 1984, the WEU was reactivated, which immediately brought the revitalized Franco-German interests to a European level (Gnesotto, 1988:44).

The current French Minister of Defence, Jean-Pierre Chevènement, is also a firm believer in the WEU and has proposed talks for the WEU Chiefs of Staff, believing that this organization could play a significant role in the verification process of the East-West disarmament agreements (*Jane's Defence Weekly*, 1989b:297). Some useful exchanges have occurred since October of 1984, but the WEU is unlikely to become a powerful organization for defence decisions because both the British Prime Minister, Margaret Thatcher, and the FRG's Chancellor, Helmut Kohl, do not want an organization that deals with questions already on the NATO agenda.

A revitalized WEU would have a number of significant advantages: for example, it is independent from NATO, deals solely with questions of European defence and does not include the neutral European states. It has both a council and an assembly, which makes it a strong vehicle for public discussion. France, as the strongest supporter of the WEU, has proposed the elimination of the organization's mandate to oversee the FRG's armaments making the FRG an equal partner in the WEU and, thereby, strengthening the organization further (George and Marcus, 1984:154–55). French interests in a more integrated European military co-operation may come to fruition through the establishment of a WEU institute for security studies to 'promote a European identity' to be located at the other WEU offices in Paris. The WEU has also recently discussed the possibility of developing a European satellite verification agency to further strengthen the influence of the organization (*Jane's Defence Weekly*, 1989j:1135). Such an agency, WEU officials have suggested, could benefit from the French SPOT and future Helios satellite programmes. President Mitterrand himself suggested the establishment of such an independent European monitoring agency in 1987 (Fouquet, 1990:29).

The European Community and 1992

In his speech at the Institute des Hautes Études de Défense Nationale (IHEDN) in October of 1988, Mitterrand stressed the difficulties European defence co-operation had already faced with the European Fighter Aircraft (EFA) and the French Rafale fighter aircraft programmes, and suggested that concrete steps towards a more common defence could be taken with the establishment of the single European market (*Jane's Defence Weekly*, 1988b:1003). French Armaments Director Bernard Retat said regarding the subject of the EC and 1992,that it would be natural for the French Government to first approach a French company when requirements for the French armed forces are met. Retat thought that the climate for co-operation would be very favourable because the main programmes envisioned involve the development of, and not the sale of, finished products. Retat went on to say that companies should be suggested to form teams and consortia, and mentioned some areas in which co-operation was already taking place: for example, the Franco-Italian Milas missile and the successor to the Exocet anti-ship missile generation developed by the FRG and France *(Nato's Sixteen Nations,* 1989a:84).

France has been trying to take the lead in organizing the preparations for 1992 and with a French President of the EC, Jaques Delors, France is likely to succeed in influencing the development of the entire market. Although there is no link between such military institutions as the IEPG and the EC, directors of national armaments are attempting to encourage through a number of initiatives the emergence of a European armaments market, which will most likely have an impact on the French aerospace industry. Among these initiatives are the identification of common research projects, co-operation on developments, progressive harmonization of the contracts bulletin for the public defence market, an Anglo-French convention on reciprocal purchasing, and increased defence co-operation between France, Great Britain and the FRG (Saint-Setiers, 1988:56–57).

There are a number of industrial and technological programmes already under the EC umbrella, such as the European Strategic Programme in Information Technology (ESPRIT), the Basic Research in Industrial Technologies for Europe (BRITE) and the R&D in Advanced Communications technologies for Europe (RACE), all of which have both civilian and military applications. The most critical point in the European defence market is that military exports often are crucial for the survival of the national defence industries. Increased competition is most likely to force some European companies out of foreign markets, with severe repercussions for their national economies. The US defence industry is also likely to turn to the European market, because defence spending will decline in the USA with the reduction of procurement orders to the national defence industries. At the same time, the USA may decide to decrease its financial commitment to Europe, requiring this money for domestic purposes. For the European allies to take on this burden themselves and to strengthen the 'European pillar', co-operation in defence is absolutely necessary. The opening of European national arms procurement to a wide-open European market would force the EC arms producers to quickly prove themselves to be highly competitive, rather than remaining, or possibly becoming, costly expenses for their national government (Reed, 1989:507–10).

France is interested in introducing a law that would require taxation on all military material from non-EC members. Smaller member countries such as Belgium are critical to this measure. Belgium, for example, has bought US F-16s duty-free. This is in line with one of the most controversial EC proposals this far, in terms of defence matters, to legally extend the EEC's Common External Tariff (CET) to cover both military and civilian goods to increase the tariff revenues considerably (Lello and Richardson, 1989:12). However, the proposed tariff was dropped from the EC agenda in April 1990 after significant pressure from particularly the US defence interest groups (Silverberg, 1990:14).

For the EC to form a complete monetary union, there is one remaining step that must be taken and that is for Great Britain to achieve full membership status in the European Monetary System (EMS). Mitterrand has threatened a reluctant Mrs. Thatcher with the prospect of all the others negotiating a new treaty and form their own 11 nation union if Great Britain vetoes the proposed monetary union. With a central European bank and possibly one currency, collaboration in the area of defence would be very much facilitated (Palmer, 1989a:5).

Both President Mitterrand and Chancellor Kohl have made it clear that the recent collapse of communist regimes in Eastern Europe has strengthened the importance of EC unification (Bruce, 1990:70). The two leaders want to establish common foreign and security policies for the EC, and strongly favour a political union to be formed concurrently with the EMS in 1993. Although 11 of the 12 member states favour the political union, Mrs. Thatcher is very negative and unlikely to support the proposal. Chancellor Kohl said on French television on 29 March 1990 that as soon as the EMS and the political union are formed and function, it could be time to elect a common European President. This could take place before the turn of the century, Kohl suggested (Bratt, 1990:A14).

Other co-operative ventures

France is a member of the Euromissile Dynamics Group (EMDG) with the FRG and Great Britain. One of the EMDG programmes is to develop and produce the Trigat anti-tank missile for service in the mid-1990s. France and the FRG are planning to deploy the weapon on the common PAH-2/HAP/HAC-3G attack helicopters. Belgium, Spain, Greece and the Netherlands have also shown interest in somehow participating in the Trigat programme (Lenorovitz, 1988:31).

In October of 1988, the Italian and French governments signed an agreement to collaborate in the development of a Family of Anti-Air Missile Systems

(FAMS). The programme is supposed to meet the full range of air-defence requirements of the next century, and the British are also expected to participate in the FAMS (*Defence*, 1989a:13).

France does not participate in some of the larger West European programmes, for example the EFA and EH-101 programmes.

II. The relationship with NATO

After the French withdrawal from the integrated military command in the Alliance of 1966, two principles guided the French co-operation with NATO: (a) it can only include conventional forces and (b) France reserves its policy of non-automaticity to avoid being drawn into a conflict, because there were French troops under non-French NATO commander or because the Allies have bases or troops on French territory.

Despite the fact that France maintains its relative independence from NATO, the country is represented on as many as 345 of NATO's 380 committees, either as a member or an observer (McLean, 1986:216). France is tied to the NATO Air Defense Ground Environment (NADGE), but is not a member of the Nuclear Planning Group (NPG). The country has 10 military missions and four liaison officers with major NATO commands: the Supreme Headquarters Allied Powers Europe (SHAPE), the Supreme Allied Commander in the Atlantic (SACLANT), the Allied Forces Central Europe (AFCENT) and the Central Army Group (CENTAG), and also participates in the NATO Conference of National Armaments Directors (CNAD), the NATO Industrial Advisory Group (NIAG), and the economic pact of France, Italy, the Netherlands, the FRG, Great Britain, Belgium and Luxemburg (FINABEL) which also consists of a number of committees dealing with land forces armaments questions (Berger, 1988a:39; and Daguzan, 1988a:18). In the fall of 1988, General Gilbert Forray, the Chief of Staff of the French Army, reportedly said that the French 1st Army participates with 'major units in around twenty bilateral exercises every year, and staff also participate with major allied commands in exercises with the objective of validating plans and agreements, and developing mutual co-operation and knowledge' (Forray, 1988:27). France is also a member of the NATO Maintenance and Supply Organization (NAMSA) and the NATO Armaments Group (NAAG).

The country will not reintegrate its forces under the Supreme Allied Commander in Europe (SACEUR), but French military commanders have worked out elaborate contingency plans with their allies in the event of conflict. This co-ordination is so well developed that some analysts think that the French principle of independence may ultimately be compromised. The new missions assigned to a restructured French Army have made the feasibility of French autonomy of decision-making for the first time a matter of discussion. These reorientations make up a significant part of the 1984-88 Military Programming Law (Rudney, 1984:87). At the same time, France has taken two significant measures to emphasize that its tactical nuclear force's growing capability does not imply either automatic commitment or subordination to NATO. First, a new command was set up for the tactical forces; and second, since 1984, the tactical weapons have been referred to as 'prestrategic'. Both measures suggest continued adherence to the policy of using tactical weapons as a test of the aggressor's intentions before the immediate escalation to strategic nuclear weapons.

Concerning the question of collaboration with NATO, it should be remembered that France, although not a member of the integrated military command, is not the only member that has created obstacles for the organization. Iceland, for example, does not even have an army. Denmark and Norway (and France) do not allow bases on their territory. Spain, Iceland and Denmark, Norway (except in war-time) refuse to host nuclear weapons on their territory. Only the FRG, Belgium, the Netherlands, Great Britain, Turkey, Luxembourg and Norway allow stocks of conventional equipment on their territory; Denmark and Norway limit NATO exercises, overflights, and restrict the use of territorial waters to certain parts of their territory, and Spain has refused to participate in the integrated military structure (Daguzan, 1988b:67).

The French 1st Army Corps, stationed in the FRG, is committed to NATO, but remains under French command. It is fairly small (only about 50 000 troops) and lacks the heavy armour which characterizes other NATO forces on the central front. Since the Force d'Action Rapide (FAR) also lacks heavy armour it is questionable as to what extent the French forces committed to the forward defence could contribute to its allies in a conflict (Owen and Meyer, 1989:24). However, with the future deployment of the new AMX Leclerc main battle tank (MBT), the FAR will gain substantial respect in the field of forward defence. Another contribution of fundamental importance to NATO is the increase of logistical support, with contingency planning for war-time use of French territory, facilities and lines of communication. This was all cancelled by de Gaulle, according to Ullman, but has secretly been reinstated since d'Estaing (1989:3–33). Certain French airfields have also been designated as dispersion bases for NATO's Airborne Warning and Control System (AWACS) aircraft, and French hospitals have been prepared to function as wartime hospitals for US military. Supplies of medication have been provided under the conditions that they are kept in French containers. The French have apparently even offered similar depots for US ammunition. This proposal apparently failed because of US insistence that it had to go through Congress and, therefore, come out in the media. Arrangements worked out under d'Estaing also included US access to French airports, harbours, pipelines, railways and highways (Ullman, 1989:3–33).

The NATO decision not to up-grade the Lance SRBMs in Europe, but instead deploy air-launched nuclear missiles, will make France will be the only country in Europe left with shorter-range missiles, the Plutons and the future Hadès. The Soviets are already asking France to have these missiles included in the disarmament negotiations, but France has so far refused. An additional potential problem for France is that NATO is likely ask France to provide some air bases for the Follow-On To-Lance nuclear aircraft.

Joint projects

President Mitterrand has authorized high-level talks with NATO officials about French participation in the advanced air defence and combat network programme NATO Air Control and Communications System (ACCS). France will preserve political control over its involvement but the project, nevertheless, might be the most important expansion of military links with NATO in more than two decades. Work on the ACCS is scheduled to begin in 1991 and will not be completed until early in the next century. Central to the system is the identification and tracking of enemy aircraft and the scrambling of NATO aircraft for interception (Sullivan, 1989:10).

President Mitterrand has been criticized for the expensive programme of the nuclear missile updating. At a press-conference in Paris 18 May 1989, Mitterrand said that 'the priority for NATO at the moment is the reduction of conventional weapons, but the time is not right for the triple-zero option. We understand Germany's problem, but they are not the same as ours' (Marnham, 1989:12). Mitterrand supports the planned seventh French nuclear-powered ballistic missile-carrying submarine (SSBN) to join the Force Océanique Stratégique (FOST) in 1994, the Hadès missile, the air-to-surface stand-off missile (ASMP) and the development of a land-based version of the M4/M45 SLBM to succeed the S3.

The use of NATO's standard computer-language, Ada, was integrated into three French systems in 1988: the Rafale fighter aircraft, the Sytac tactical command centre of the new SSBNs and the Super Puma carried Orchidée battlefield surveillance radar system. Ada will also be used in the Franco-Italian naval anti-air missile, and the Franco-German helicopter programme (de Briganti, 1989a:19 and 23).

The French decision to participate in the NATO frigate programme, NFR-90, marked a further step away from a purely national armaments industry toward European and alliance-wide agreements (Berger, 1988a:40). However, in the fall of 1989, Great Britain, France and Italy withdrew because of great delays and increased costs of the programme (*Defense & Armament Héraclès International*, 1989b:12). Other co-operative ventures are the Atlantique 2 surveillance aircraft with Belgium, the FRG, the Netherlands and the USA; and the Multifunctional Information Distribution System (MIDS) with the USA, Great Britain, Canada, the FRG, Italy, Norway and Spain; the Tactical Communication Interface Device (TCID) with the USA to test common switching systems; the NATO Identification System with the USA and Great Britain; the Tactical Automatic Data Processing (ADP) Systems with the FRG, Great Britain and USA; the Multiple-Launch Rocket System (MLRS) with the

USA, the FRG and Great Britain in which France will participate in Phase III in co-operative development of a thermal guidance warhead to attack vehicles (Berger, 1988b:54). Together with the USA, the FRG, Italy and Great Britain, France has formed the first international consortium for development of NATO's massive Battlefield Information Collection and Exploitation Systems (BICES). The project is likely to last well into the next century, and will be paid for by NATO as a pilot project. BICES is supposed to collect and process data for air-, ground-, and sea-based sensors and distribute intelligence information to commanders throughout NATO and will combine with other networks such as the ACCS (Hitchens, 1989a:44). France also collaborates with Canada, the USA, Spain, the FRG, Italy, Turkey and the Netherlands in two eight-nation consortia: the All-weather Smart Projectile (ASP) and Alliance Development Corporation (ADC). These will compete in the first phase of a programme to develop a self-guided projectile for the standard NATO anti-armour weapon, the 155-mm howitzer (Hitchens, 1989b:15).

Another major NATO programme with French participation is the NATO Helicopter for the 90s, the NH-90, including the FRG, Italy, and the Netherlands. Altogether 584 helicopters are planned to be built, of which France would buy 210 including both naval and army versions (Guérin, 1990:36-37).

France will also participate in the redistribution of equipment among the NATO countries to avoid having the latest weaponry reduced under the coming CFE agreement in Vienna. This step marks a departure from the traditional French position towards NATO, but the reason for the participation reportedly is a French interest in controlling particularly US influence over future NATO export markets during the arms transfers (White, 1990:2).

Joint exercises

Contrary to what some critics of the French commitment to NATO claim, French forces regularly train together with NATO forces. French forces, for example, exercised together with West German and US forces in the FRG in October of 1983. This exercise, 'Bucéphale 83', was designed to study land force operations, particularly for the French 5th Armoured Division, which was not familiar with the terrain (Touzin, 1984:137–39).

In 1985, the most extensive peace-time evaluation of the French airpower was a 10-day exercise called 'Airex '85'. Integrated into the main exercise was an exercise called 'Datex', with NATO aircraft from Great Britain, Italy, the Netherlands, Canada, Spain and USA participating. French aircraft engaged in simulated counterattack against targets in the Netherlands and the FRG (Sedbon, 1985:9).

An entire French division, the 1st Armoured Division at Trier, took part in the 'Fränkischer Schild', sponsored by the Third German Corps, in 1986. This was the first time a complete French division trained with West German forces, and a significant contribution to the Franco-German defence co-operation efforts (Ruiz Palmer, 1987:499).

In May of 1988, France participated with other NATO forces in the 'Dragon Hammer 88' exercise. French naval and amphibious forces from the Foreign Legion and French Air Force participated in the exercise (van Loon, 1988:32).

The Datex exercise of 1990 took place in March and involved aircraft from eight NATO countries. The purpose of the Datex exercises has been to evaluate French readiness to detect and counter air attacks on its territory from any direction. General Norlain, the Chief of Air Defence Forces, said that as long as stability in Eastern Europe is questionable, the Soviet Union will 'remain for long a military giant' (Denarié, 1990:6). Significant for this large air exercise was the participation for the first time of 24 Mirage RDI and three AWACS aircraft of the type France has purchased to enter service at the end of 1990 (Denarié, 1990:6).

The Franco-American relationship

For many years, it was thought that the USA refused to help France to develop its nuclear weapons. General de Gaulle had been openly critical to the USA after the war and when France began to develop its own nuclear deterrent in the 1950s, it was clear that the USA would not support France. For example, under the McMahon Act only Great Britain was allowed access to US know-how and technology. The only thing the French could purchase was 440 kilos of U-235 for nuclear submarine reactors and 11 Boeing KC-135 tanker aircraft for the Mirage and Jaguar nuclear-capable bombers in the French Air Force in the 1960s (Kolodziej, 1987:52).[1] One year after the French withdrawal from NATO's integrated military command, France and the USA signed an agreement regarding the Operation, Maintenance and Security of the Donges–Metz Pipeline System. The Agreement was designed to assure the petroleum resupply of the US forces in Central Europe. There are two bases for the pipeline system, one in Chalons and one in Donges–Metz. Altogether 18 US contractors serve as personnel in France for the pipeline (Duke, 1989:159).

Although President Eisenhower's was of the opinion that it did not make sense to keep from the allies what the Soviet Union already knew, there were strong suspicions by the USA that the USSR Committee for State Security (KGB) had infiltrated the French nuclear programme. In the 1960s, President Kennedy's Secretary of Defence, Robert McNamara, considered a third nuclear power, like France, to make it inevitable for the Soviets to launch a first-strike in a crisis (Ullman, 1989:7). In 1974, an official NATO document, the Declaration of Atlantic Relations, determined that the French and British nuclear forces did in fact contribute to 'the overall strengthening of the deterrence of the Alliance', and the USA thought it better to attempt to incorporate France into the integrated NATO command again (Ullman, 1989:8). France would obviously keep its nuclear forces regardless of the US view, so the USA in the end decided that it would be better to give the French some advice on nuclear technology.

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[1] In 1981, the USA agreed to install new engines in the tankers (Arkin and Fieldhouse, 1985:13).

Prior to the NATO meeting in Brussels in the spring of 1989, it was revealed from the USA that there had been a secret Franco-American agreement on co-operation in nuclear matters since those years and that the USA had provided advice and assistance to the French nuclear programmes since the early 1960s. Under the agreement, the USA was to provide information for France on how to develop and design nuclear weapons and to deliver these weapons by missiles or aircraft. There was also an agreement on co-operation on nuclear matters signed in 1961 between France and the USA, but that agreement was not believed to have as wide implications as was now revealed. A Pentagon spokesman, Lieutenant Colonel Keith Schneider, said that information exchange was not illegal, and conformed with the 1961 agreement (Mohr, 1989:5).

French Minister of Defence Jean-Pierre Chevènement confirmed the existence of the 1961 agreement and the existing amendments in the new 1985 agreement saying that their existence was not secret. He emphasized that nuclear formulas had never been transferred and said that the agreements do not imply any dependence on French nuclear forces on technology or decision-making about the use of nuclear forces (*International Herald Tribune*, 1989:1). Ullman claims that the USA provided information on miniaturization of multiple independently targetable re-entry vehicles (MIRV) warheads, protection from electromagnetic radiation from previous nuclear explosions by hardening of silos, and intelligence data on targets in the Soviet Union and the Soviet ABM defences. In return, the French provided advice on nuclear weapon safety and security. Another important element in US assistance, as far as the USA could have been concerned, was the belief that by helping France it would not have to tap funds meant for their conventional forces which could strengthen NATO (Ullman, 1989:3–33). The 1985 agreement between the two countries is said to contain permission of the sharing of restricted nuclear data (Mohr, 1989:5).

If the French nuclear arsenal indeed has some US imprints, it could indicate a potential capacity for interoperability between French and British equipment, the latter which is derived from the USA. Standardization attempts between France and Great Britain in conventional weapons are a natural outgrowth of increasing technological co-operation between the two (Webster, 1989c:5).

The USA may also have benefitted from co-operation with France in other ways. Although most of the US Omega Very Low Frequency (VLF) facilities located overseas were gradually retired in the late 1970s, one was located at La Réunion. This US facility, designed to provide assured communication with submerged submarines, was in fact operated by France (Harkavy, 1989:160).

The Franco-American relationship also includes joint exercises. Since the mid-1980s, the two countries have joint manœuvres on a relatively regular basis. In February 1989, for example, France and the USA carried out a joint naval exercise in the Mediterranean in which the first ever joint amphibious landing between the two countries took place. The exercise included a rehearsal of a hostage rescue mission in which about 600 French and US citizens would be rescued (Marlowe, 1989:2). Furthermore, the naval co-operation also includes the French company Télécommunications Radioéléctrique et Téléphonique's (TRT) installation of its ANTI-240 communications system on the US aircraft carrier Carl Vinson in the summer of 1987, designed specifically for the US Navy (Gilman, 1988:58). In return, the French Navy was considering the possibility of buying US F/A-18 Hornet 2000s to replace its Vought F-8 Crusaders, while waiting for the naval version of the Rafale (France decided in December of 1989 to refurbish the Crusaders with French equipment instead) (*Defense & Economy World Report*, 1990:3).

French submarines have relied on the US Transit navigation satellites since they were put in orbit and long before other countries were using the signals. US navigation technology played a key role in the development of France's own strategic submarine force (Arkin and Fieldhouse, 1985:13).

Joint projects

France has been reluctant to increase trans-Atlantic co-operation because of the restrictions the USA has put on exports and transfer of technology (Anthony, 1990:67). Nevertheless, a few examples of the more recent co-operative arms projects include the landmark decision in early 1988, when the US Defence Department approved the transfer of radar technology between Texas Instruments and Thomson-CSF. Texas Instruments would provide active array radar technology for the Rafale fighter aircraft and, in return, Thomson-CSF would transfer air-to-air radar technology to Texas Instruments. This implied both Franco-American co-operation on the Rafale, and US willingness to co-operate with its European allies on the up-grades of the F/A-18 Hornet 2000 and the F-16 Agile Falcon (Morrocco, 1988:16).

France's acquisition of US AWACS and the US Army's decision to acquire the Réseau Integré de Transmissions Automatique (RITA) system are examples of two-way arms trade. The French Délégation Général pour l'Armament (DGA) and the US Department of Defence have signed an agreement covering advanced research into reactive armour and the mathematical theory of wavelets, used in, for example, ballistics (Isnard, 1989h:1115). US and French military contractors have also won awards for the development of a densely packaged 32-bit processor, and the establishment of a high-degree of interoperability for future NATO weapons systems (*Jane's Defence Weekly*, 1989a:376).

The Anglo-French Relationship

After the Nassau agreement, de Gaulle was persuaded that the British would never be 'loyal Europeans' given the British commitment to co-operation with and dependence upon the USA. This was a strong reason why France twice vetoed Great Britain entry into the EC, first in 1963 and then again in 1967. For Great Britain, arms co-operation with France would strengthen its continental ties; and de Gaulle was looking for new markets to support French military industry and pay for the requirements of new technology of the armed forces. Anglo-French projects like the Jaguar fighter, the Martel air-to-surface missile, and the Puma, Gazelle and Lynx helicopters, were actually under way at the same time de Gaulle vetoed British entry into the EC. Collaboration between the two countries from the 1970s and onwards include the (multinational) Airbus A-300 and the Concorde, the latter being a technological wonder and a financial disaster with cost overruns four times the projected estimates (Kolodziej, 1987:87).

William Walker and Philip Gummet assert that there are three main differences between the French and the British positions on Anglo-French armaments co-operation (1989:428). First, Walker's and Gummet's words, France has not shown the same intense interest in procurement as the British. As opposed to the British politics of the 1960s and 1970s, the Thatcher Government consider free-market competition to be of fundamental importance, whereas in France, monopolies are often approved. Second, France still considers US competition extremely worrisome. Mitterrand, for example, immediately launched the EUREKA programme as a response to the US Emerging Technology (ET) and SDI programmes. Great Britain's reactions to the ET and SDI was lukewarm. As a result, according to Gummet and Walker, France stresses more heavily the necessity for substantial expenditure on co-operation in both military and civilian research and development (R&D) and increased European participation in arms technology than does Great Britain (1989:428). The merging of military and civilian programmes is less of a problem for France than Great Britain. Hence, France supports the creation of a European DARPA-style agency which would fund these two areas while Great Britain hesitate about it. Third, the British defence industry has been quite successful recently, as opposed to the French which both was shocked by the failure to interest other countries for its Rafale programme and the heavy fall of its share in the arms exports market. However, it is thanks to recent orders France will likely regain its position as a major arms dealer. The Rafale programme, the French say, is still open for every other West European country to participate.

Another threat perceived by the French, the authors point out, is the growing Anglo-German co-operation which could weaken the French industry's international strength. Examples of this is the sale of the Tornado to the Middle East (at Dassault's expense), the EFA programme and the relationship between General Electric Company (GEC) and Siemens. France also worries over the recent concentration of FRG defence industrial activities in the giant firm Daimler-Benz. Thus, France is likely to attempt to strengthen its bonds with Great Britain, thereby disrupting an Anglo-German alliance. France would then hope to recover lost industrial power through industrial co-operation and a European division of labour. This would take place in a combined export effort and the attempt to enter into markets currently dominated by the USA, such as the British and West German markets. Agreements have been made to facilitate both the opening of markets and industrial co-operation between France and Great Britain. The Anglo-French Reciprocal Purchase Initiative of 1987 is such an example (Walker and Gummet, 1989:428–29).

At the Anglo-French summit meeting in London on 22 January 1988, accords were reached permitting British troops to use the lines of transportation; ports, airports, railways and highways, during reinforcement exercises of the British Army of the Rhine (BAOR). British troops have not been allowed to exercise in France since 1966, but a secret agreement since 1976 exists that allows Great Britain to send reinforcements to FRG through France in time of war. This route was thus set up permanently. The accords also permitted French nuclear submarines to call at British ports (de Briganti, 1988:15; and *The Economist*, 1988a:58). One possibility for the French and British governments to make themselves less vulnerable, should the USA consider withdrawing its troops from Europe, is closer co-operation and bilateral defence agreements.

Nuclear co-operation?

The implications of the INF Treaty for France and Great Britain was one of the factors to push them closer in co-operation over nuclear issues. Both countries have stressed the need for the WTO countries to substantially reduce their superior conventional forces before any reduction of nuclear force in France and Great Britain can take place. There is also a feeling in both countries that their nuclear weapons should not be scrapped as long as there are other countries which may possess them, now or in the future, and which could use them to threaten French or British national interests or blackmail them (Jones and Bryant, 1989:150-51). The most obvious element would be to work towards an integration of their nuclear submarine fleets. Co-ordination of the targeting would increase the deterrence capability against the Soviet Union, and a co-ordination of the maintenance cycles would reduce the risks of having several submarines from both countries at the dock at the same time, making them easy targets in a pre-emptive strike by WTO forces. Joint submarine patrols and co-operation on the security of nuclear bases would be other possible areas of co-operation (Palmer, 1987:174). The Director of the Institute for International Strategic Studies (IISS), François Heisbourg, gives three factors that would favour Anglo-French collaboration, in the nuclear field: both the British and the French are upgrading their nuclear submarine forces, the Strategic Arms Reduction Talks (START) negotiations may result in deep cuts in the superpowers strategic nuclear arsenals, and the reduction or elimination of US short-range missiles in Europe as a result of the Short-range Nuclear Forces (SNF) negotiations (1989a:301–302).

Great Britain needs to up-grade its WE-177 nuclear gravity bombs, and has begun to look into an airborne missile. Co-operation with France on the French ASMP seems to be a good alternative, especially in terms of cost-sharing and lesser dependence on the USA on technology. Both Great Britain and France should consider its short-range ballistic missiles (SRBM) and intermediate-range ballistic missiles (IRBM) more or less out-dated because of the ongoing changes in Eastern Europe, and develop missiles that can reach targets on Soviet territory (Heisbourg, 1989b:21).

The nuclear doctrines of both countries apparently accept the risk that their doctrines of nuclear deterrence could also lead to their own destruction. They also count on the perspective that a potential aggressor would realize that they could hurt him enough to make him an easy target for his other adversaries. The British and French thresholds can therefore be set much lower than those set in the US Mutual Assured Destruction (MAD) doctrine. Both countries rely on massive retaliation, targeting Moscow in their counter-city strategy, although it is not expressed so bluntly by Great Britain, according to Heisbourg (1989a:303). There are also several differences between the two countries: France emphasizes independent use of the nuclear forces, while Great Britain underscores their assignment to NATO; the French nuclear force is mainly the result of a national technical effort, the British is entirely dependent on the USA for technology and testing; France places substantial emphasis on the its (in many critics eyes very ambiguous) independent nuclear doctrine, whereas the rather subdued British doctrine is based on a very concise set of concepts (Heisbourg, 1989a:302–303). The French also base their deterrence on a triad of nuclear forces, while Great Britain relies on its SSBNs. Heisbourg writes that the French 18 Mirage IVP bombers with ASMPs will have to be phased out in the late 1990s and that France is likely to move towards a dyad of only SSBNs and the S3 IRBM (1989a:305). Both countries have tactical nuclear forces, where the British, even if derived from the USA, is more diversified than the French with a significant number of submarine nuclear depth charges. France also has a very specific use for its prestrategic weapons, which are only supposed to deliver one ultimate warning leading either to deterrence or directly to strategic nuclear exchange (Heisbourg, 1989a:304–305).

A problem for both British and French nuclear forces in the future could very well be the outcome of the Comprehensive Test Ban Treaty (CTBT) to which Great Britain is a signatory, but France is not. A total ban by the superpowers would probably prevent Great Britain from testing in Nevada. If France joined the treaty, it would not be able to develop the M4 successor. France is the only nation with nuclear weapons left in Europe that would be included under the INF Treaty if it joined the Treaty, and is certain to get into political problems, at least with the Soviet Union, when it upgrades its S3 IRBMs. Also, the negotiated elimination of all ground-launched allied systems, particularly in the FRG, would not improve the French or British deterrent roles in Europe. François Heisbourg writes that in this context, the deployment of the Hadès missile would 'entail a significant price' in the relationship between France and the FRG, not fulfilling one of the basic requirements of extended deterrence, since the French will not allow any West German influence on the possible use of these weapons. The negotiated reduction, but not elimination, Heisbourg continues, of NATO's ground- and air-based nuclear systems would create a more favourable context for Anglo-French nuclear forces. Both NATO and the WTO accept nuclear deterrence, and France would not lose anything politically by deploying the Hadès or the ASMP. Finally, the withdrawal of all SNF as a result of a unilateral move by the FRG, for example, would probably make France and the Great Britain look for each others reassurance, as would those members of NATO not reconciled to the complete denuclearization of Europe (Heisbourg, 1989a:317–18).

On the conventional side, bilateral exercises outside of NATO manœuvres actually includes the rather unusual exercise in November of 1989 with the British and French General Staffs. There was no involvement of troops, and the exercise was intended to test how well the two staffs could co-ordinate their activities, particularly the communications net for crisis actions overseas (*Defense & Foreign Affairs*, 1989b:49).

At a meeting between British Defence Secretary Tom King and French Minister of Defence Jean-Pierre Chevènement in April 1990, co-operation on an anti-aircraft missile system and the improvement of radar identification systems was discussed. It was also decided that reinforcement exercises later this year of the BAOR will use French ports instead of ports in Belgium and the Netherlands (Kemp, 1990:738). The two ministers agreed that neither country would participate in the START until the USA and Soviet Union have reduced their stockpiles beyond the 50 per cent cuts already suggested in the reduction talks. The need for a study on co-operation on a frigate for the 1990s was decided, since the NFR-90s will not come to fruition, and further discussion on co-operation on the ASMP/ASLP took place. A joint communique on 11 April 1990 stated that the two ministers 'believe the rapidly changing situation in Europe has underlined the importance of the closest possible co-operation between us in the equipment area' (Hitchens and Miller, 1990:3 and 29). It should, however, be noted that the aircraft-carried US Tactical Air-to-Surface Missile (TASM) and the projected longer-range 'Super TASM' (1000 km range) are strong contenders since their range is long enough not to worry East Germans or Poles (Walker, 19905).

Great Britain has been one of the most driving forces of the NATO countries in urging France to take on more responsibility in NATO, and support French initiatives to increase European co-operation on security matters. So did Douglas Hurd, the British Foreign Secretary, for example propose an Anglo-French brigade to Foreign Minister Roland Dumas at their meeting in March

1990. Prime Minister Margaret Thatcher and President François Mitterrand said at their meeting in early May 1990 that co-operation between the two countries could involve all military areas, including nuclear arms. Both supported President Bush's decision not to up-grade the Lance SRBMs in Europe, and Mrs. Thatcher underscored the importance of up-grading the nuclear free-fall bombs, possibly securing British interests in the French ASMP/ASLP programme (Hitchens and Miller, 1990:29; and Nundy, 1990:10).

Joint Projects

The two-way arms trade function very well thanks to cross-purchasing agreements, for example the British order of French ECA PAP-104 remotely piloted vehicle for mine location and the reciprocal French acquisition of Racal Decca maritime navigational radar (*Jane's Defence Weekly*, 1988d:1104).

British Aerospace and French Thomson-CSF are co-developing the 'seeker' to a new medium-range air-to-air missile, the 'Active Sky Flash', for export. As a competitor to this programme on the world market, British GEC-Marconi and French Électronique Serge Dassault will develop the 'seeker' for the French Matra MICA, designed for the Rafale aircraft (White, 1989:6).

In November of 1988, the possibility of linking French and British advanced fighter helicopter programmes raised by France in London at a conference on joint procurement of air weapons and systems. The French Armaments Director, Jaques Chevalier, said that 'this could concern supplies for the EFA or Rafale, for example, or the HAP/HAC-3G, Tonal or NH-90 helicopters'. The conference was the third held under the auspices of the Anglo-French defence equipment co-operation agreement signed in March 1987, when land systems were discussed. The goal in all three conferences has been to find ways to prevent duplication of R&D and prevent the build-up of monopolistic defence manufacturers in either country (*Aviation Week & Space Technology*, 1988:70). The same month, the IEPG Defence Ministers met in Luxembourg, and the British Minister for Defence Procurement, Lord Trefgarne, said that the Anglo-French initiative was the vanguard of a wider European tendency (Hervey, 1989:33).

The French hopes for a co-development with the Great Britain on a French ASMP waned when it was announced that the TASM would be developed by the USA and Great Britain. The French had pushed for a missile that could equip both French and British aircraft, and serve as a symbolic European deterrent. Instead, the British have suggested that France participate as the third partner in a tri-national project based on TASM. The Anglo-American agreement is an extension of their co-operation in nuclear matters, from the Skybolt missile in the 1960s, to the Trident nuclear submarine programme of today (Fouquet, 1989b:1309). During the London talks on 13-15 September 1989, co-operation on the ASMP still seemed possible after positive comments from the British Secretary of State for Defence, Tom King (Barrie, 1989:541).

The most important element in the possible Anglo-French ASMP co-operation is the fact that President George Bush approved Great Britain's participation (Almond, 1989:4). This approval permits the transfer to France of the US designed nuclear technology that Great Britain has always relied on. The transfer implies a radical change from the longstanding commitment of the British to the USA on nuclear weaponry, and a major political attempt between the two European nuclear powers in co-operation over nuclear matters. The ASMP is of special interest in this light, now that the Lance missiles will not be modernized. Even more important is, of course, that the FRG will find it absolutely unthinkable to have any kind of SRBM deployed on its territory after the disintegration of the Iron Curtain and the expected unification with the GDR.

France is also increasingly weary of the West German indecisiveness about the anti-ship missile programme (ANS), and have begun to negotiate on British co-operation instead. The ANS uses the same ram-jet engine as the ASMP missile, and Great Britain may be interested in that particular missile which could indicate that co-operation also on the ANS should not be so far fetched (de Briganti, 1990a:3 and 21). Great Britain has also approached the Franco-Italian Eurosam consortium about British participation in the missile programme and the Franco-German consortium for the Tigre helicopter programme (Antoine, 1990a:32-33).

For the first time, France has been invited to bid for a major British main battle tank (MBT) subsystem. Two French firms, together with seven British, have been asked to bid for a new laser sight for the British Chieftain MBT (Foss, 1989:294).

5. The relationship with the FRG

I. Postwar history

The main objective of French postwar foreign policy was to control and oversee German recovery in which France demanded enormous amounts of war reparations. The second element concerned an attempt to prevent the superpowers from dividing Europe into two spheres of influence. France, mainly under the administration of Charles de Gaulle, made several attempts to create a purely European alliance. De Gaulle was extremely critical of the US proposal after the Second World War to speed up the rearmament of the FRG. Instead, France proposed a series of measures which suggested a wider European defence. This, France believed, was the only framework in which a West German rearmament could be accommodated. The French proposals met with little success and the FRG was accepted into the WEU and NATO.

Other more economically oriented organizations were also established: the Organization for European Economic Co-operation (OEEC) and the European Council. These two bodies did not deal with the questions of the Franco-German security and confidence problems, however, a nucleus of countries including both France and the FRG favoured the so-called 'Schuman Plan' in 1950 which led to the formation of the European Coal and Steel Union (ECSU). Such a union, Jean Monnet suggested, would make a war between France and the FRG impossible. Within the framework of the ECSU, coal and steel industries are supervised by an independent authority which, by controlling the production and distribution, would ensure that neither France nor the FRG could benefit more than the other and would serve to prevent the development of expansionist ideas.

For France, the division of Germany had been necessary to make any reconciliation with its historic archenemy feasible. After the war, de Gaulle had in mind an attempt to bind the economically expanding FRG to France, to integrate it into Western Europe under French supervision and, at the same time, to carry out an independent foreign policy. With no success in establishing a strong European Alliance and in keeping the USA out of Europe, France concentrated on establishing its own position in the world as a medium-sized power, and began an independent quest to develop nuclear weapons.

German scientists and engineers provided the French armament and space programmes with significant assistance after the Second World War. The FRG was forbidden by its constitution in 1949 to develop or possess a nuclear arsenal. The West Germans were also denied the right to develop strategic bombers, missiles, ships above a certain size and chemical and biological weapons.[1] The collaboration between France and the FRG, however, could not become balanced and truly bilateral until the FRG was invited to join the WEU in 1954, and the Bundeswehr was established in 1955.

In 1958, Charles de Gaulle returned to power and soon found a good friend in his German counterpart, Konrad Adenauer. It was clear to them that a new Europe had to be built on a Franco-German foundation.

The Berlin-crises of 1961–62 gave rise to closer relations between the two countries. The Germans felt abandoned by the USA and Great Britain, but had full support from France.

In 1963, France and the FRG signed a bilateral agreement of friendship—the so-called Elysée Treaty—to formally recognize the friendship between the two countries and to underscore the common security interests.

From the 1970s, the trade between the two countries has increased dramatically. The FRG has become one of the economic superpowers in the world much to the annoyance of France which has become dependent of the strength of the deutsche mark for the strength of the French franc.

In an effort to counter the negative inflationary effects of the increased US interest rates and the dollar, the West German Bundesbank has felt compelled to increase its key lending rates. The attempts by France to pursue a low domestic interest rate policy could not succeed without the aid of low West German interest rates. Accordingly, this put the franc under hard pressure and raised the prospect of a realignment within the European Monetary System (EMS). The co-ordination of economic policy between the two countries has been difficult because the FRG's trade surplus with France has continuously increased. In the past 25 years, while French exports to the FRG has increased eight-fold, West German exports increased 12 times. Since 1985, France's trade deficit with the Germans has increased from $5 billion (FFr 44.9 billion) per year to $5.5 billion (FFr 49.1 billion) (Farr, 1989:14).

France was forced to devalue the franc both in 1982 and 1983, with the Germans insisting on a third devaluation, because of the severe imbalances between the two currencies. Between 1979 and and 1983, the French trade deficit with the FRG increased by 144 per cent and its inflation rate also remained significantly higher (Wells, 1988:61 and 69).

II. Closer links between Mitterrand and Kohl

That the deployment of Soviet SS-20s would prompt France and the FRG to approach each other in security matters was a quite natural response. France was concerned about the increasingly powerful peace movement in the FRG and the possible political implications of the FRG's drift towards neutrality and nationalistic ideas. The FRG, at the same time, was concerned about French reduction in its conventional forces which could have been available for the FRG's defence and French nuclear targeting, which, inevitably, would be West German territory in the case of the Pluton SRBM. At the Paris Franco-German summit meeting in February of 1982 (the 39th Franco-German consultation in accordance with the Elysée Treaty), a joint declaration paved the way for co-operation between France and the FRG in security matters. A 'group of four', the Ministers of Defence and Foreign Affairs of the two countries, was established to meet regularly and informally, and in October of the same year a Council on Common Defence and Security was formed at a level below the 'group of four'. The Council then created three specialized working groups: armaments co-operation, military co-operation and politico-strategic affairs (Adrets, 1986:107).

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[1] In the mid-1980s, the ban on the development of the missiles was lifted, but the ban on biological and chemical weapons still remains, although the FRG has become a signatory to the Non-Proliferation Treaty.

With the revival of the strategic co-operation clauses on the 20th anniversary of the Elysée Treaty, Mitterrand underscored in his January 1983 speech to the West German Bundestag the clauses of a strict military character that had not been implemented. The clauses he cited included: the convergence of military doctrines with a view to arriving at common concepts, regular meetings of the Defence Ministers every three months and of the Army Chiefs of Staff every two months, exchanges of personnel between the two countries' armed forces, co-operation on armaments right from the planning stage and co-operation on civil defence (George and Marcus, 1984:158).

In the mid-1980s, a dialogue between the French Parti Socialiste (PS) and the West German Sozialdemokratische Partei Deutschlands (SPD) took place in which the two parties were trying to overcome their differences of 1981–82, and to move toward a common European policy. The PS insisted that the FRG's 'Ostpolitik' had to become more Europeanized and follow the French ambitions of going beyond the Yalta concept. During the first Mitterrand years, the French Socialists were very anti-Soviet and pro-Euromissile deployment, and considered the real source of insecurity in Europe to be the lack of autonomy and human rights in Eastern Europe. At the same time, the SPD was pro *détente* and anti-Euromissiles. French policy towards the GDR has generally depended on relations with the FRG (Hassner, 1987:207–208). Therefore, according to the French, European arms control should preferably take place through intensified work for democratization and communication with Eastern Europe to try to overcome the division of Europe (Hassner, 1987:202).

It was with the arrival of Mitterrand that the question of the WEU was raised yet again. The French, always looking for European solutions, proposed an increased role for the WEU as a forum for discussing matters of common interest on defence and in November of 1983, Mitterrand hinted that closer European co-operation within NATO might follow from the new Franco-German military dialogue.

The same year, Mitterrand and Kohl took a symbolic step in displaying the bond between the two countries and their definite reconciliation when they held hands on the battlefield of Verdun (Farr, 1989:14).

In 1986, Mitterrand and Kohl authorized studies on the use of the FAR and the expansion of joint exercises. In an agreement similar to the Athens agreement between the USA and Great Britain, Mitterrand pledged to consult with the Chancellor before authorizing the use of the prestrategic nuclear weapons on West German territory, time and circumstances permitting. A system for instant communication in time of crises was also to be installed (Wells, 1988:68). One year later, Kohl proposed to the French that a joint brigade composed of soldiers of both nationalities was to be established.

In January of 1988, the two countries finally formed the Council on Common Defence and Security, which was agreed in the 1963 Elysée Treaty. The Council meets at least twice a month alternating between France and the FRG. According to military analyst Jaques Isnard, the official, most important, tasks of the Council are 'to ensure consultation and mutual alignment between both states on all questions concerning the security of Europe, including the area of arms control and disarmament; to improve the interoperability of equipment; to develop co-operation with respect to armaments, taking into account the necessity to ensure the common defence, of maintaining and reinforcing an adequate industrial and technological potential in Europe; to reinforce the capacity of both countries' Armed Forces to co-operate in peacetime, as well as in time of crises or war' (1988b:151).

At the same time, the creation of a council for co-operation in economic matters to deal with first and foremost the exchange-rate, shows that Bonn and Paris would like to avoid conflicts in these matters. Both the French perennial deficit in trade with the FRG and the Bundesbank's tough anti-inflation policy are constant sources of aggravation and a sense of inferiority in Paris (Isnard, 1988b:151).

These councils, critics argue, have the functions that are already covered by the WEU and the EC. Thus, the French initiatives towards closer collaboration with the FRG may (according to these critics) just be an attempt to enhance France's leadership role in Western Europe and to influence the FRG's foreign and security policies, while continuing to remain outside of NATO's integrated military command structure. Several political observers find it doubtful that France's interest in the FRG is based solely on mutual benefits. West Germans complain that the French have tried to construct programmes which would automatically advance French objectives but require the FRG's central political and economic support. The Franco-German helicopter, the reconnaissance satellite and the Hermès space shuttle are often mentioned as examples to show how France is trying to force the Germans to choose between the US SDI and the French EUREKA programmes.

There is also frequent criticism against the FAR and Franco-German Brigade as being mostly French rhetoric, that in reality these organizations make no fundamental change in the original French doctrine. France, according to some observers, compensates politically for its economic inferiority to the FRG. France refuses to negotiate the non-automaticity concept in favour of a full commitment of French forces to the FRG. An expert on French security policy, David Yost, describes this relationship as the FRG being less interested in closer arms development co-operation with France than France is with the FRG (1988:178). In Yost's words, the FRG regards its military industry as 'necessary evil', whereas the French hold their independent armaments industry as very prestigious. Suspicious Germans, Yost writes, think France is taking advantage of the FRG's technological and financial support to expand its own nuclear programmes and its overseas arms sales with greater success (1988:178).

With the historic events in the late fall of 1989 in the GDR, France had reason to reactivate the old issue of the FRG's drift towards neutralism and reunification. President Mitterrand, however, suggested that the two German states could be reunified within ten years as part of a 'new European structure', affirming his previous statements that France was no longer afraid of a new German state and that it was entirely up to the Germans to decide for themselves. This was a clear break with the past practice of condemning any support for German reunification, and a sign of French confidence in the structure of the post-1992 single European market, keeping the Germans in line with the overall interest of the West European countries. Mitterrand was, however, quick to criticize Kohl for his reluctance to recognize the 1945 Oder–Neisse line. Chancellor Kohl joined Mitterrand in the late 1989 in stressing a reinforcement of West European integration, to present a strong and unified front to the fast changes in the Eastern part of Europe (McCartney, 1989:1; and Marsh, 1989:1), and has held on to this through the spring of 1990 and the election in GDR. It is clear, however, that France's response to German reunification is an effort to try to contain the growing West German power, and speed up the implementation of the economic and monetary union, within the framework of the EC (Hilton, 1990:10).

According to West German politician Karsten Voigt, the Germans 'no longer find themselves in the position of a one-sided dependence. This...has developed into mutual dependence...Voluntary renunciation of sovereignty is not necessarily the same as renunciation of influence or loss of influence. Through this voluntary surrender of sovereignty, the Federal Republic generally can carry out its interests more constructively and effectively within multilateral institutions, than through a strictly national effort. This necessarily implies a multilateral embedding of German foreign and security policy' (Voigt, 1989:357–58).

III. Conventional and nuclear collaboration

To the Germans, the French 'Two-Battles' Doctrine was unacceptable for two reasons. First, if France wanted to perform an independent deterrence manœuvre behind the NATO lines in a conflict, then it would seriously undermine NATO's capability to maintain a strong forward defence with conventional forces. If the NATO lines were breached, then NATO would be forced to initiate the use of nuclear weapons. Second, if prestrategic weapons became the central element in independent deterrence, then France could employ these weapons unilaterally, without NATO consent or consultation. In other words, the conventional defeat of NATO would be anticipated from the start.

French defence doctrine has depended on the US nuclear umbrella since the 1950s. Yet, the French have been extremely concerned about US influence with Europe and particularly with the Germans. For a long time, France viewed the FRG as a barrier basically for its own national sanctuary. The idea, however, that the FRG could follow France's example and create its own nuclear deterrent is terrifying to France. Nevertheless, France consistently refuses to extend its nuclear deterrent also to cover the FRG. In actuality, this left the West Germans no military option between the US nuclear umbrella and conventional forces, and neutralism (Calleo, 1987:182).

In his 1983 Bundestag speech, Mitterrand attributed the 38 years of peace in Europe to nuclear deterrence, and insisted that the French nuclear force could not be included in the Geneva negotiations. 'One can only compare what is comparable', he said, and between the two superpowers and France there was 'a difference in nature'. The French nuclear force was and would remain independent, under sole responsibility of the French President, and this increased 'the uncertainty for an eventual aggressor, and only for him' (Johnstone, 1984:84).

In terms of civilian nuclear co-operation, talks have been under way between the French Framatome SA and West German Kraftwerk Union AG to launch a programme in the Third World for nuclear power plants. French reluctance to share its nuclear technology has delayed the project which has been called the first of its kind in global nuclear industry. France's nuclear energy is of strategic importance because the country obtains 70 per cent of all its energy from nuclear power plants. By co-operating, the two countries would save a lot of the extremely high costs of making the almost non-existent nuclear plant industry a profitable business again (Neher, 1989:13). At their two-day meeting in April of 1989, Mitterrand and Kohl acknowledged the ambitious effort to co-ordinate and even to merge nuclear fuels and electrical capacities of the two countries. Cogéma, the French nuclear fuels group, and the West German concern, Veba, has announced plans for a joint venture in nuclear-fuel manufacturing and reprocessing. Veba, moreover, has announced its intentions to buy 49 per cent of the nuclear reprocessing plant Cogéma is building at La Hague (Markham, 1989:2)

In terms of conventional military co-operation, the former West German Chancellor Helmut Schmidt, with the support of Former French President Giscard d'Estaing, said in a speech in Paris in February 1987, that French and West German non-nuclear forces, along with those of Belgium, the Netherlands and Luxembourg, should be integrated into a single force consisting of more than one million soldiers. Schmidt also proposed a joint Franco-German defence budget, with the the FRG supplying money for conventional forces and France for the nuclear. France would provide nuclear protection not only for itself, but for all of the continental Western Europe. The nuclear forces, Schmidt said, would still have a French commander, and the decision to use them will remain with France (*The Economist*, 1987:66).

The issue of a European defence system was discussed by Schmidt in a series of articles in 1988 in *Die Zeit*. The existing NATO structure should be replaced by a West European defence system led by a French Supreme Commander, Schmidt wrote. As he said in the Paris speech, the FRG, with its strong economy and its large conscript army, would be responsible for the enlargement of the conventional forces, and France would cover both countries with its nuclear umbrella. Schmidt said that the two countries only after five days of mobilization together would have two million soldiers ready for combat (Lundin and Rosin, 1989:5).

France, however, does not appear to be willing to guarantee an extension of its nuclear umbrella to protect the FRG. The French prestrategic Pluton SRBMs (deployed in France) would strike FRG territory, not too far removed from where the French forces are stationed; and French conventional forces may be, compared to other NATO forces, too weak to make a significant difference, if they are moved from the FRG's western border with France to its eastern and prepared for a forward battle. The other problem is that France and the FRG cannot quite assess the two million troops, which Helmut Schmidt suggested. Today, the FRG maintains a total armed forces of 494 300 and France about 466 300 troops, according to *The Military Balance 1989–1990*.[2]

Although it is true that the Bundeswehr could boost its strength to 1 346 300 men by calling in reservists and France also could mobilize some 353 000 reserves, France is reducing its forces to be able to afford its nuclear programmes and other procurements, and due to a declining birthrate in the FRG, its forces will drop significantly in numbers. In wartime, the French Army would total 532 000 of which more than 50 per cent would be reservists. In mechanized units, reservists account for only 30 per cent, while combat support units are essentially composed of about 70 per cent reservists. The FRG's standing force is expected to shrink to 339 000 in 1995 and to 207 000 in the year 2000 (van Loon, 1989:30).

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[2] The West German figure has been revised to 456 000 with another cut by 36 000 men, both as a result of the decline in the defence budget, and the shrinking pool of conscripts. The latest number of West German forces would be 420 000 including 50 000 reservists, with 297 000 for the Army; 91 200 for the Navy, and 31 800 for the Air Force. See *Peace News Bulletin* (1989:5).

Furthermore, how genuine is the French interest in a common defence? The French Socialist Prime Minister from 1981 until 1984, Pierre Mauroy, said about the FRG: 'France does not intend to suffer the consequences of conflicts that are not its own', and Mitterrand has said that 'the Atlantic Alliance is not about to be replaced by a European Alliance. The reason is that no [European] military power can substitute for the American arsenal.' (Joffe, 1987:7). Thus, it should be noted that France is aware of the fact that it is entirely dependent on the US nuclear deterrent for the credibility of its own deterrent. Mitterrand's comment does not, however, forbid French plans for an increased European role in NATO, with co-operation and co-ordination in research, development, sales, testing and so forth.

Nevertheless, opinion polls and party platforms in the mid-1980s (except for the Communists) have pointed towards a growing French interest in military solidarity with the FRG in particular, and Western Europe in general. François Heisbourg, the Director of the International Institute for Strategic Studies (IISS), has suggested that, with the aforementioned Bundeswehr reduction, during a period of US force cuts, France would find it difficult not to accept an FRG request for the additional French support of around 50 000 troops, the size of the 2nd Army Corps, to fill the gap. Heisbourg said that a Franco-German command in the Central Army Group (CENTAG) could be created, and the functions of NATO's Defence Planning Committee could be returned to the North Atlantic Council to enable France to remain outside NATO's integrated military command in that situation (Yost, 1988:183).

It is with the creation of the French Force d'Action Rapide (FAR) in 1983 and the pledge by Mitterrand to consult the Chancellor prior to employment of the French prestrategic weapons, France has moved towards a more active role within NATO and particularly in the forward-defence of the FRG. France no longer regards the FRG as a buffer-zone for French territory and is quite aware that increased French participation with conventional forces alongside of NATO is in the best interests of all deterrents, including the French independent nuclear deterrent. In 1983, France also moved the prestrategic Pluton missiles into a single division, which relieved the French 1st Army of its nuclear weapons and, thereby, permitting the Army to assume a more flexible role with the use of its conventional forces. The French 3rd Army, subordinate to the 1st Army, was relocated from the Paris area to northern France; and the eight armoured divisions, from the 'Type 1977' reorganization, were reorganized into six reinforced divisions. Mitterrand has indicated that the 1st Army together with the 1st Armoured Division in the FRG, and the 2nd Army, with the 3rd and 5th Armoured Divisions in the FRG, might be deployed ahead of the zones of engagement which had been agreed upon under the de Gaulle Presidency with NATO (Ruiz Palmer, 1987:493).

France, however, still refuses to accept responsibility for a special segment of the FRG's frontier with the GDR. France argues that, because its armed forces constitute the sole operational reserve of the alliance based in Europe, deployment flexibility should not be burdened with a specific pre-established assignment.

Examples of the difficulties between France and the FRG in security policy have been the incompatibility of the French strategy of massive retaliation and NATO's strategy of 'flexible response' and France's striving for independence in security matters and its determination to been regarded as a world power. The FRG has had limited possibilities for action because of its dependence on the USA and is, at the same time, concerned with the reunification of Germany which makes the French nervous. France is striving to remain dominant among the European countries in armaments exports, with increasing competition from the growing West German defence industry. Finally, the two countries have very differing non-European security interests with France, unlike the FRG, pursuing a policy of a global military presence and close ties with allies among its former colonies.

The common European security interests, however, overshadow the differences between the two countries. Under the terms of the Franco-German bilateral agreement, a large unit of the Bundeswehr was, for the first time, placed under the operational control of a French army corps and carried out exercises on French territory. The exercise 'Champagne 89' took place during the two last weeks of September 1989, and was supposed to be attended by WTO observers under the CDE–I (Conference on Confidence- and Security-Building Measures and Disarmament in Europe [Stockholm]) (*Jane's NATO & Europe Today*, 1989d:5).

The Franco-German Brigade

In November 1987, Chancellor Helmut Kohl proposed the formation of a Franco-German brigade, in the light of the then forthcoming INF Treaty. All NATO countries agreed that following the conclusion of this Treaty, conventional forces would assume much greater importance than before. Kohl realized that the USA was not likely to allocate more money for its forces in Europe, but would rather expect that the Europeans would increase their own responsibility for conventional defence. The Brigade is a symbolic, yet significant, attempt between France and the FRG to increase the strength of the European part of NATO. The FRG Chancellor has not asked the French to abandon of their independent strategic nuclear deterrent in favour of an extended sanctuary covering the FRG. Kohl is known to favour US military and nuclear protection, but is trying to commit the French conventional forces to the defence of the FRG.

The Brigade is located on FRG territory and is composed of soldiers and officers from both countries. When it is ready, it will consist of 4200 men, with 2063 soldiers from the French FAR and the rest from the FRG's 55th Territorial Brigade. One of the two French regiments to be transferred to the unit was already stationed in the FRG and a second regiment is to be shifted from France in 1991. In 1988, the first 26 German and 33 French officers arrived in Böblingen at the designated site of the brigade, south of Stuttgart. General Etienne Renard, of the French forces FRG Headquarters in Baden-Baden, said that 'Our security is identical to that of Germany.' (Lundin, 1989:5). Although the Brigade may be a first step in the strengthening of both European conventional forces and greater European integration, data published by the IISS reveals that there are 90 WTO and 38 NATO divisions already deployed and ready for combat. This would be equal to approximately 384 brigades, giving the Franco-German Brigade a rather symbolic value, than a great military contribution to NATO (Bonnart, 1987:23).

The French, themselves, apparently regard the Brigade to be of little strategic value. A report by a special study commission from the French Senate in April 1989, revealed that the Brigade would mean 'reduced military value'. It was seen more as a 'laboratory' to test out various new solutions to problems than as the embryo of a mixed, or even European, army. The study also noted that the commander of the Brigade, French Brigadier-General Jean-Pierre Sengeisen, thought the Brigade would be prevented from participating in a forward defence, due to its light equipment, and the lack of commonality in equipment between the French and West German components (*Jane's NATO & Europe Today*, 1989a:5). Lieutenant Colonel John S. Westerlund, who is also a graduate of the French Ecole Supérieure de Guerre Interarmées, states that operations in Europe could profit from the speed and firepower of the brigade in 'rapid establishment of blocking positions that would rely heavily upon infantry and Milan/Panther antitank fires'...'The brigade could also benefit rear area operations requiring rapid reinforcement in scenarios where some firepower quickly is much better than more firepower later, and land area security or counterterrorism missions' (Westerlund, 1990:41).

The second-in-command after General Sengeisen is West German Colonel Günter Wassenberg. The Brigade receives its orders from the French Army Chief of Staff and the Bundeswehr Inspector General. During a crisis or conflict, the Brigade could be commanded in three ways: under the operational control of the West German Territorial Army's Southern Command in the rear combat zone of CENTAG under the operational control of a NATO commander in a forward combat zone, upon a joint decision by the Chiefs of Staff of the two Armed Forces in correspondance to the Ailleret–Lemnitzer and Valentin–Ferber agreements or under the operational control of the French Army Corps (Yost, 1988:182).

The West Germans, always needing reassurance and always worried that France might launch its nuclear weapons instead of joining a conventional fight for Europe, view the Brigade as a way of tying France more closely to the strategy of 'flexible response'. President Mitterrand probably perceived the joint Brigade as a way of checking what many in France believe is a West German drift towards neutralism.

Under the present agreement, the wartime mission would not finally be decided until the conflict begins. So, it is technically possible that the FRG, having put two of its best territorial defence battalions into the Brigade, could have trouble getting them into rear-area fighting. France, for example, might think the Brigade would be better employed helping to guard a flank of the French Corps in the FRG (*The Economist*, 1988:24). Former Minister of Defence, André Giraud, said that the Brigade must be outside of the integrated NATO command structure and should be covered by France's independent nuclear umbrella: 'The question now is how to use the unit, because we can not envisage putting French soldiers in a position where they would not be covered by France's nuclear umbrella.' (*Financial Times*, 1987:3).

In 1991, when the Brigade is supposed to be fully operational, it should be prepared to: (a) intercept enemy units breaking through NATO's forward defence, in co-operation with another large NATO unit; (b) fight enemy airborne forces in the rear area; (c) hold key areas ahead of allied forces until the arrival of reinforcements; and (d) ensure the overall security of the rear areas against possible airborne operations (Isnard, 1989s:687). In addition to a command and a support battalion—which consists of both nationalities—the Brigade is made up of a West German infantry battalion and a French armoured reconnaissance company in Böblingen; a French infantry regiment and a West German engineer company in Donaueschingen; a West German artillery battalion at Horb/Neckar, and a mixed combat support battalion, a West German anti-tank company and a French training unit in Stetten (*Jane's Defence Weekly*, 1988a:844–45). The Brigade is scheduled to hold its first independent exercise at the beginning of 1991 (Isnard, 1989b:28).

Joint projects

Both France and the FRG have shared several programmes since the late 1950s. In 1955–57, the contracts for license production of the Noratlas and the Fouga Magister aircrafts were concluded; and, in 1959, Messerschmidt–Bolkow–Blohm (MBB), Aérospatiale and Vereinigte Fleugzeugwerke (VFW) founded the Transall Group. In the 1965–78 period, many weapon-system projects were established, for example, the guided Milan and HOT anti-tank weapons, and the Roland low-level air defence systems. The Alpha Jet aircraft was also a Franco-German project during this time period (Benecke, Krafft and Meyer zu Natrup, 1986:234–36).

Until the mid-1990s the C160 Transall transport, the Atlantique surveillance and the Alpha Jet aircrafts that were possibly the most important items in the Franco-German defence industry co-operation. After several years of high-level negotiations, the joint combat helicopter PAH-2/HAP/HAC-3G programme finally was launched in 1987. This programme has been considered very important for both countries, both as a symbol for the Franco-German relationship and for the need of a success in European arms co-operation. It has a funding cap of $738 million (FFr 6.6 billion)—not including engine and Trigat anti-tank missile costs. It will be produced in two 'Tigre' versions, since the two countries could not agree on one common design. France has planned for a purchase of 140 anti-tank HAC-3Gs and 75 escort/support HAPs to be deployed with the FAR and the FRG 212 PAH-2s. Delivery is scheduled to begin in 1998, and fully completed in 2008 (Mordoff, 1988:31; *Defense & Armament Héraclès International*, 1990a:10).

In terms of weapons systems, France and the FRG have several shared programmes. MBB and Aérospatiale are working on a fibre optically guided missile known as the 'Polypheme' (*Defence*, 1989c:340). MBB and Matra are designing a remotely piloted vehicle (RPV) for battlefield reconnaissance. It is supposed to collect information via TV cameras and/or forward looking infra-red. The project name is 'Brevel', and it is thought that France and the FRG would require 200-300 systems together (*Jane's Defence Weekly*, 1989c:735).

France's Armaments Director, Bernard Retat reportedly stated that as much as 50 per cent of France's anti-tank missiles are produced in the FRG. The new anti-ship missile generation developed by Aérospatiale and MBB, the Anti-Navire Supersonique (ANS), is planned to succeed the ageing Exocet. The FRG, however, has recently threatened delays of the ANS, because it is not a high-priority objective in West German procurement plans. For France, the development is high priority for industrial reasons. Aérospatiale has sold more than 2800 Exocet anti-ship missiles in all versions to 27 countries and wants to remain one of the strongest in its market. The ANS would be three times faster than the Exocet, reach targets up to 200 km away and be capable of very low-level sea-skimming manœuvreing trajectories. A low-cost option dubbed Anti-Navire Leger (ANL) would reach 30 km. The deployment date because of delays in the FRG was set for 1998 instead of 1994 (de Briganti, 1989e:46). However, France has approached Great Britain to take the FRG's place to speed up the programme; and the initial British reaction has been positive. A decision is due to come in the early spring of 1990 (de Briganti, 1990a:3 and 21).

Aerospatiale and MBB have made public plans to form a joint helicopter venture in 1990, making it the second largest in the world following the US Sikorsky. Both the French and West German company will continue their participation in the NH-90 and Tigre programmes (*Jane's Defence Weekly*, 1990f:515).

Another French company, Matra, will, in co-operation with the West German Bodenseewerk Geratetechnik (BGT), develop an advanced short-distance missile to compete with the British Advanced Short-Range Air-to-Air Missile (ASRAAM) (*Svenska Dagbladet*, 1989b:1).

IV. Conclusion.

From the French position, the British reluctance to support an economic sphere and political union in the EC greatly increases French possibilities to co-operate with the FRG, which shares the French ambitions to create such an economic and political system. It is already evident that both countries will benefit from industrial co-operation, having several arms programmes in common and several companies sharing ownership and R&D across the borders.

France supports German unification, but shares the opinion with the other NATO members that the GDR should also become a NATO member. A neutral unified Germany, in the French eyes, would only contribute to de-stabilization of Europe. However, the unification has created problems for France. The French nuclear deterrent partially rests with the 'last warning' capability of the French SRBMs. The future Hadès missiles will reach no longer than into eastern Europe, possibly falling on GDR territory after a launch from France. This prospect is extremely frustrating to the Germans who may demand the scrapping of the French SRBMs. French officials have talked loosely about how the 'Tous Azimuths' Doctrine is now more valid than ever, but the other West European countries find that hard to accept, suddenly realizing that the French Hadès SRBMs will also be aimed at them from now on, in accordance with this doctrine. Deployment of French SRBMs in Germany is more than unlikely., and hard pressure from particularly the FRG is now applied on France to totally re-assess its nuclear deterrence doctrine.

6. The French position in a common European defence

I. Introduction

The fundamental changes in the European security arena between 1985 and 1990 will inevitably result in a new form of defence doctrine for the West European NATO countries. For over 40 years, the NATO defence of Europe has been comprised of at least three fundamental elements: the US nuclear guarantee, the economic and political dominance of the USA over Europe and the common historic reasons for unity after the Second World War (Lees, 1989:173). In the early 1980s, the common perception in the West was that the East posed the fundamental threat. President Reagan began the process of an enormous increase in US military expenditures on advanced technology, in an attempt to match the Soviet numerical superiority in most conventional and nuclear arms. With the accession of Mikhail Gorbachev in the Soviet Union, capped by his election (by the Supreme Soviet) to a Western-style presidency, the question of military parity has been steadily reduced in significance. President Gorbachev set about dismantling the very threat that has justified the existence of NATO. Among other initiatives, Gorbachev repudiated the Brezhnev Doctrine, withdrew Soviet forces from Afghanistan, announced unilateral cuts in troops and arms, signed the intermediate-range nuclear forces (INF) Treaty and disclosed Soviet military expenditures (although that number has been subject to criticism). Apparently, a threat of a WTO attack on either Europe or the USA no longer exist. This is especially the case after the events in the fall of 1989 and spring of 1990 in Eastern Europe. Because of the reduced level of Soviet and Eastern threat, the NATO member states have consequently begun to examine their military expenditures.

The USA allocates a significant portion of its yearly defence budget to provide and maintain US forces and weapons in Europe, and has expressed the desire for the Europeans to increase their funding for this purpose. The European NATO countries, on the other hand, have become accustomed to relying on the USA for both nuclear and conventional defence. These countries also apparently worry more about their domestic, social and educational expenditures, than their defence expenditures. The Bush Administration also must face an accumulated US debt, resulting from the public sector deficit of about $150 billion (FFr 983 billion) per annum, and a deficit on current account amounting to approximately $120 billion (FFr 786.5 billion) per annum, some of it because of the military expenditures of previous administrations.

There is also a growing belief among both the US and European public that the USA is not prepared to sacrifice its own territory for Europe in the event of war. It is important for the European NATO members in their relations with the USA to speak with one voice. If the same opinion is not shared, then the possibilities for Europeans to be taken seriously will be weakened. Many European leaders expressed the feeling that President Reagan and President Gorbachev went over their heads in the signing of the INF Treaty, disarming Europe without European consent. Even if an Anglo-French joint nuclear force was established to compliment the USA, the FRG is likely to characterize it as counterproductive to positive change in Europe. Furthermore, the generation which experienced the Second World War and endured the Cold War of the 1950s is ageing, and coming generations, not having these experiences, may be less prepared to pay the costs of security.

II. French perceptions of a common European defence

France perceives itself to be a medium-sized power, pressed between the powerful Soviet Union, a potentially powerful Federal Republic to the east, and the USA and the previous dominant maritime power, Great Britain, to the west. Thus, the French look favourably towards the development of a multipolar Europe, with independent East European countries, in order to improve its room for manœuvre. In the the past, the reunification of Germany has been perceived as a threat to France, because the West German economy is already strong enough to influence the strength of the franc (see chapter 5). In the mid-1980s, the primary concern of French foreign policy was France's relationship with the USA and the Soviet Union. This relationship was pursued mainly through bilateral agreements (although of a different kind with the Soviet Union, because, among other things, the rouble was not convertible) (Gordon, 1987:204).

Concerning defence issues, French politicians have emphasized the necessity of very close collaboration between the European allies in military research and development (R&D). In a January 1988 interview in *Le Point*, French Minister of Defence Jean-Pierre Chevènement reportedly stated that France had to modernize its deterrent

> in order to make it the backbone of European defence. To think that the equilibrium of Europe could be based upon the denuclearization of our continent is an illusion. There must exist in West Europe a defence organization founded on the concept of dissuasion, and not on the concept of battle, because it is within Europe's interest to avoid armed conflict. The problem is to consider this deterrent as an essentially defensive posture from a position of relative weakness. The French deterrent is destined one day to be extended into German territory, but only when Germany so wishes; perhaps in co-operation with Great Britain (Isnard, 1988g:899).

Great Britain called on France in the spring of 1990 to resume full participation in NATO and several meetings have taken place between top officials of the two countries (Lewis, 1990b:742). Although President Mitterrand has not made any indications that France would return to NATO's military command structure, it has been stated that France would participate in a debate about a more European oriented defence. This could, however, only occur if the Treaty of Washington stayed, but was modified. US forces would also have to remain in Europe to, at least, provide nuclear protection against the Soviet Union. France favours the EC as the vehicle for security matters, underscoring the link between economics and politics already on the agenda for the Communities. It is doubtful, however, that the USA would stay on in Europe if defence and security policies were co-ordinated by the EC (Lewis, 1990b:742).

In the summer of 1989, former President Giscard d'Estaing suggested an end to mandatory military service in France proposing that France's defence policy should consist of nuclear deterrence in combination with a professional army. This army could better co-operate with other European forces in terms of language, training and equipment. Even if d'Estaing did not suggest a European army, opinion polls in France indicated overwhelming support (71 per cent of those polled) for his idea (*Jane's NATO & Europe Today*, 1989c:6).

III. A common European nuclear deterrent?

France and Great Britain are the only two European countries which possess nuclear weapons. A common European nuclear deterrent, however, is not automatically conferred. European NATO governments would probably find it difficult to win votes for diverting public spending to defence to replace part, or all, of the $165 billion (FFr 1081.4 billion) spent annually by the USA on the 'defence of Europe' (Palmer, 1987:25–26). In both France and Great Britain the cost of maintaining separate nuclear deterrents will probably continue to rise with further development of the British Trident and the French SSBN programmes. Because of these significant expenditures, it is likely that both countries will face political difficulties in acquiring increased allocations for their conventional defence commitments, which would be an argument for collaboration. The concept of a 'Euro-bomb' remains an incredible proposition given the British dependence on US maintenance and support of US satellites. This has been the case with the Polaris system, and will certainly be so for the intended Trident programme. If France and Great Britain pooled their SSBN forces (providing a theoretical strength of about 1100 warheads early next century), it is likely that one single executive authority would be granted the final decision as to when the nuclear weapons would be launched. An Anglo-French political entity in which this could take place is something François Heisbourg describes as a 'somewhat utopian outlook' (Heisbourg, 1989a:316).

French and British tactical deterrence would also have to change: the use of the French prestrategic weapons would imply immediate use of the strategic weapons, thus instantaneously involving British territory in the conflict. Co-operation on tactical weapons has already proved difficult for the two countries. Concerning the plans to co-produce a new ASMP, Great Britain has gone back and forth about instead buying the US Short-Range Attack Missile (SRAM) II; and the French disagree with the British on the range of the ASMP.

It was expected for a long time in Europe that the USA would modernize the Lance SRBM stationed in Europe. Because of budgetary restrictions in the US Congress and the expectation that the Soviet Union would propose a total elimination on land-baseed nuclear weapons in Europe if the FRG and the GDR are unified, NATO will instead replace the Lance with an airborne missile. Because of these developments, both Great Britain and France have made hints towards co-operation after all on a version of the French airborne Air Sol Moyenne Portée (ASMP)/Air Sol Longue Portée (ASLP) to maintain a strictly European nuclear deterrent. The USA is likely to favour the deployment of the Tactical Air-to-Surface Missile (TASM) as the replacement for the Lance in 1995 (Baker and Hitchens, 1990:1).

An Anglo-French European deterrent would apparently require that the European NATO members agree to rely on a nuclear guarantee by Great Britain and France, instead of the USA. It is also conceivable that the FRG be allowed to determine whether the weapons would be used, because they are likely to be fired on German territory.

Kurt Biedenkopf, a leading political strategist in the FRG, has denounced the discussion about Anglo-French nuclear co-operation. His opinion is that the FRG would be more likely to favour improved relations with the Soviet Union and Eastern Europe, than to participate in a Euro-bomb consortium (Palmer, 1987:174). The FRG's anti-nuclear stance became so evident in 1988 that Mitterrand even found it necessary to attend that year's NATO summit meeting, something a French President had not done since 1966 (SIPRI, 1988:14).

Another problem facing a European defence is the question of the naval forces, both nuclear and conventional. Although France has commissioned new frigates and aircraft carriers, even together with the British fleet, it could not match the US 6th Fleet in the Mediterranean.

IV. Prospects for European co-operation

Although France recognizes the value of the US nuclear deterrent, Minister of Defence Chevènement has publicly acknowledged that it is unreasonable that the West European countries should continue to rely on US nuclear forces. In November of 1988, Chevènement declared that France was ready to create the 'embryo of a European deterrent' in conjunction with the British, 'when the time comes' (Anderson and Webb, 1988:7).

President Bush, with the acquiescence of NATO, has declared rather large troop reductions of US forces in Europe. Chevènement's reaction to Bush's initiative has been widely discussed. Among other things, Chevènement has emphasized the importance of the establishment of a European defence industry in order to solve the expected difficulties with allocations and interoperability shared by the West European states. Greater co-operation and cross-purchasing policies between the countries are necessary to handle both reduced US military contribution to European defence, and the impact of the post-1992 single European market on industrial competition, both in and out of the EC (Bonnart, 1989:18–21).

At a meeting in Naples in November 1987, the Italian Prime Minister, Giovanni Goria, told President Mitterrand that Italy was very concerned about the concept of a common European defence, especially a defence 'guided by binational and trinational directors', pointing at the developments between France and Great Britain, and France and the FRG. Goria wanted assurances that Italy would be kept as well informed on European defence as it is on the EC budget (Sheridan, 1987:10).

Spain, however, has displayed great interest in a European defence. The country is interested in somehow participating in the Franco-German brigade, and views a European defence initiative as a way to create and maintain defence links with its European partners, while at the same time avoiding further co-operation with the USA in NATO. Spain is also concerned about the possibility of the Franco-German relationship becoming so strong that it would leave other European countries behind in questions of social, economic and security policy. Spain also wants to join the Western European Union (WEU), which will reiterate its desire to keep somewhat at a distance of NATO. In 1988, Spain formally requested the US withdrawal of its 72 F-16 fighter aircraft. Furthermore, Spain, like France, is not a member of the NATO integrated military command (Bruce, 1988:2).

Critics of the 1987–91 Military Programming Law, claim that France's attempt to increase its efforts in modernizing its independent nuclear deterrent will take the country further away from a European defence concept and close allied collaboration. The French perspective, however, is different, arguing that the nuclear force with its projected Hadès, S4, and the ASLP missiles will do the opposite. With these elements France will be able to extend its arsenals through longer range, more precise targeting and warhead capacity, to reach Eastern Europe and beyond in the event of a Soviet attack (Isnard, 1989a:25). An additional reason for critics of the French tilt towards co-operation with NATO is the ASMP missile. The ASMP was designed to succeed the FATAC's AN-52 gravity bomb and has, apart from its 'prestrategic' advantages, the ability to strike deep behind the enemy forces. Since its first deployment in 1986, the ASMP has improved French deterrent significantly, increasing the potential number of targets in the Soviet Union, but also the WTO's strategic military targets in Eastern Europe. An official discussion about a change in French nuclear policies because of the events in Eastern Europe has yet to be reported. So for example, has the deployment of the Hadès missile been defended on the grounds of instability in Eastern Europe. Chevènement has reportedly said that the Hadès could be put 'at the service of Europe' because French vital interests would also include the eastern part of a unified Germany (Lewis, 1990b:742).

According to Chevènement Europe could 'embrace Germany's new found power in a larger project of peace and democracy associating the other European nations in the quest for improved conditions and a collective security founded on confidence, openness and a balance of forces at lower levels of armament' (Isnard, 1990b:31). Military analyst Jaques Isnard comments on Chevènement's words by saying that France 'underestimates the dangers represented by the threat of neutralization of a Germany reunified with Soviet consent, if that were to be the price the West had to pay' (Isnard, 1990b:31). France, nevertheless is trying to use the current situation in Europe to tie the FRG around the Anglo–French nuclear axis to avoid German neutrality in the event of German unification.

The Director of the Franco–German relations programme at the Forschungsinstitut der Deutschen Gesellschaft für Auswärtige Politik, Ingo Kolboom, and Klaus Becher, a research fellow at the same institute, write that Germany must continue to remain within NATO, which should also remain the central vehicle for security matters in Europe. No NATO forces, including West German, should, however, move into East German territory (1990:14). Military integration of East German forces should instead take place through brigades of the Franco–German type, involving about 50 000 troops from France and the GDR under significantly expanded Franco–German Defence and Security Council co-ordination, Kolboom and Becher continue. Germans would be allow to exercise in France, and France would have to downplay the Hadès missile deterrent. In the authors' opinion's, such a defence arrangement could get the support from the Soviet Union which has been calm in its reactions to the Franco–German brigade (Becher and Kolboom, 1990:14).

A European defence involving all of the European NATO members would also imply a fair degree of compatibility between armies in the European conventional weapons area. Equipment standardization in NATO (unlike in the WTO) is currently a problem. For example, NATO has 23 different models of fighter planes, 7 different tanks, 22 anti-tank weapons and 20 calibres of anti-aircraft weapons. France has maintained its policy to develop French weapons with the result being that the French conventional forces have little compatibility with other NATO forces. This will apparently continue with, for example, the new AMX Leclerc tank and Rafale aircraft, unless these weapons are purchased by the other Allies.

France has not been active in NATO planning since it withdrew in 1966. France did not participate in the 'AD-70' force improvement on the Long-Term Defence Programmes (LTDP), both of which have largely shaped NATO's conventional defence posture. Neither was France involved with the development of the long-term planning guidance for Follow-On Forces Attack

(FOFA) in the definition of the Conceptual Military Framework (CMF) for future Allied defence planning. From the mid-1980s, there has, however, been a significant change. The French planned acquisition of the Multiple-Launch Rocket System (MLRS), the CL-289 remotely piloted vehicle (RPV), and the Super Puma helicopter-carried Orchidée radar system are steps in the direction of the principles of FOFA, making real time planning and rapid location of enemy forces possible for the French Army. France has not displayed much interest in taking responsibility for a corps sector in the 'layer cake' deployment of forces in the FRG in peacetime, neither has it made its commitment automatic; but in the context of an evolving NATO concept of operations increasingly stressing countermobility and counterair operations, the availability of the FAR and the FATAC for NATO in the conventional defence of West Europe is increasingly important (Ruiz Palmer, 1987:501–502).

In his 1984 book *European Security and France*, François de Rose suggested that France must increase its conventional power for the 1st Army in the FRG. According to de Rose, these forces have to be advanced to be in a more meaningful position for battle, and the FAR is currently too dependent upon NATO logistics and allied air support. De Rose argues that French nuclear arms outside of NATO integration presents both an advantage and a liability, because of the uncertainty and complication these independent strategic weapons convey both to NATO and to the potential aggressor. This would also be the case in a transition from tension to an atmosphere of one of military confrontation and after an actual military conflict has begun. De Rose asserts that, by having the Pluton missiles in a separated command from the French 1st Army, there is a clear opportunity to use French conventional forces alongside NATO forces in a forward battle in the FRG. An increased strength of the French strategic nuclear weapons in both number of warheads and modernization would further stabilize deterrence and hence European security, representing another complicated (and ambiguous) element for Soviet military planning.

France has consistently refused to share the control over its SRBMs with the FRG. Critics claim that for France to enhance a European defence, Paris must accept some advice from the Germans about the shaping of the French nuclear arsenal and employment doctrine. However, some French officials doubt that the Germans would truly welcome this responsibility. The French think that the Germans would be reluctant to specify preferences about nuclear employment, especially since the targets would most likely be located in the FRG or the GDR. Unequivocal answers by FRG officials might be leaked to the news media, and another polarizing debate in the FRG could follow, with negative repercussions for the FRG's relations with France and the USA, and possibly with the Soviet Union and the GDR. France's interest in the use of neutron warheads in a possible battle with the WTO, has also annoyed the Germans who interpret it as if France plans to turn the FRG into a nuclear battlefield (Yost, 1988:187).

David Yost concludes that the prospects of enhanced European security co-operation will be limited 'by the pace of progress within the critically important' Franco-German relationship (1988:192). Therefore, it is not surprising, says Yost, that the Soviet Union has been critical of all the moves toward closer co-operation in defence between France and the FRG, including the modest formation of the joint brigade. Both Great Britain and Italy have expressed reservations about the idea of a 'two-speed European construction' with the possibility that the Germans withdraw some troops assigned to NATO in favour of co-operation with France. On the other hand, the Franco-German co-operation means, inevitably, that French preparations to participate in NATO joint manœuvres are improved, which is very positive. West European security would become much more stable and enduring because of greater self-reliance in defence, and thus, a more balanced relationship with the USA would develop (Yost, 1988:192–93).

V. Organizations behind a European defence

Because of the increasing number of mergers in the European defence sector, military procurement orders of a purely national nature will be increasingly more difficult to obtain. After 1992, the signatories of the Single European Act (SEA) will also face open borders for the settlement of foreign EC companies. The overall declining birthrates in Europe will force cuts in troop strength, and the increasing cost of research, development and production of military arms will force the countries to collaborate. In other words, national defence budgets are unlikely to increase while advanced weapons systems of an increasingly complex nature will cost even more. Fewer forces will also have to defend more territories after a US troop withdrawal, making the need for rationalization and co-operation even more crucial. Already there is an extensive European co-operation in the arms sector (see chapter 4). The organizations which would facilitate and organize further European military co-operation are already in place. France and the FRG have demonstrated (with the establishment of the Franco-German brigade) that a potential joint defence is not impossible—a concept of interest to Italy, Spain and the Netherlands.

With the passage of the SEA, the EC can now legitimately debate defence related matters. Nevertheless, the real organization for this debate is the WEU. Comprised of a Council of Foreign Ministers, an Agency for the Control of Armaments and a Parliamentary Assembly, the WEU is potentially a very powerful organization for the creation of a European defence. The WEU, for example, coordinated the European naval presence in the Persian Gulf during the Iran–Iraq War (Niblett, 1989:21) and has received substantial support from most of the West European countries, with the notable exception of Great Britain (Mrs. Thatcher does not like the idea of a competing organization to NATO). Norway, Denmark, Greece and Turkey have yet to become members of the WEU. It also seems that for the EC to be able to discuss close collaboration with countries outside of NATO, in particular with the EFTA and East European countries, the organization of a European defence should not lie within the EC mandate. Another organization of great value for a European defence would be the Independent European Programme Group (IEPG), which may enable companies to participate in the full range of cross-border high-technological programmes, so as to strengthen the European market towards Japan and the USA.

Another reason for a European defence is that it is the nature of the continent to be responsible for its own defence. Still in the minds of some European leaders, particularly President Mitterrand and Chancellor Kohl, is the Reykjavik summit meeting in 1986, when President Reagan was about to agree to fundamental strategic changes in Europe, without first having consulted the NATO allies (Palmer, 1989:4).

VI. Conclusion

Although most West European countries favour the development of a European Army, there are still great differences between the countries' concepts about its shape or form. France supports the idea of a multinational force under the umbrella of the WEU, whereas the other West European countries seem to support a European Army in principle—the WEU being to weak of an organization in this context.

All NATO members and East European countries, except for the Soviet Union, support the membership of the GDR in NATO. Particularly France is concerned about a neutral unified Germany. However, deployment of nuclear missiles in a unified Germany seems very unlikely, especially in light of the possible withdrawal of the Lance missiles from Europe. Great Britain could be the only country in Europe, except for Turkey, to accept deployment of US TASMs on its Tornado planes (based on British territory) making Prime Minister Margaret Thatcher the likely target of tremendous criticism in her own country. Politically, co-operation between Great Britain and France on the ASMP/ASLP seems to be a better alternative. France would also benefit politically from such a venture. The deployment in 1992 of the Hadès SRBM in France is already criticized by, among others, the FRG, which recognizes the obvious fact that the Hadès would fall on German (or possibly friendly Polish or Czech territory) if launched from France. It is not thinkable today that France or the FRG would favour deployment of the Hadès in the FRG. At the same time France must re-assess the deterrent value of the Hadès, a common nuclear airborne deterrent together with Great Britain could very well be the solution.

7. The French nuclear deterrent

I. Policy on use of the nuclear arsenal

Possibly the greatest strength of the French military deterrent is the almost unanimous public support of the nuclear arsenal, and especially for the Forces Nucléaires Stratégiques (FNS). This support builds on the Gaullist tradition of France as an independent global power, with a proud and patriotic people which de Gaulle managed to encompass in one word *le grandéur*. One French school of thought, however, maintains that it is only the political symbolism of the FNS and not whether it is actually good enough to live up to its promises, that makes the FNS credible. For example, President François Mitterrand's advisor on security policy, Pierre Lellouche, argues that 'any attempt to clarify the basic ambiguities in French defence policy with regard to the real margin of independence France enjoys would undermine the existing consensus' (Hyland, 1985:67).

In France, it is the President of the Republic who is responsible for formulating defence policy and making military decisions. The Parliament's role is restricted to approving the defence budget, and the government is not bound by any laws to provide information that it would prefer to have classified. A candidate for public office runs as an individual rather than as a formal representative of his party. Therefore, it is up to the president to design his own defence policy—he is not bound to take into account the policies of his predecessor, the Parliament or his party (Berger, 1982:23). It is also the president that would order the use of nuclear weapons. President Mitterrand explained the question of French deterrence as follows; '*La piéce maitresse de la stratégie de dissuasion en France, c'est le chef d'Etat, c'est moi*', or simply 'I'm the deterrent' (Amalric, 1983:1). A Presidential authorization of the use of nuclear weapons would be channelled through the Centre de l'Operation des Forces Aériennes Stratégiques (COFAS), located in a hardened command centre at Taverny, near Paris, to the nuclear forces. The Admiral in Charge of the Submarines (ALFOST) Headquarters at Houilles, northwest of Paris, commands the nuclear powered ballistic missile-carrying submarines (SSBN). Two launch control centres command the land-based missiles. Eight other primary military control centres, and two secondary control centres support the main centres. The presidential authorization would go straight to the military commands for the prestrategic aircraft-carried weapons and the Pluton short-range ballistic missile (SRBM) (Arkin and Fieldhouse, 1985:86).

The 1984–88 Military Programming Law defines the French nuclear doctrine in terms of four main elements. First, by acquiring an independent nuclear arsenal, France has achieved the status of a nuclear power. Any potential aggressor considering an attack on French forces or territory must consider the likelihood of a nuclear response. Second, because of the ambiguity of French policy on exactly when then nuclear weapons would be employed, the enemy knows that even the smallest display of aggression could result in nuclear retaliation. Third, as opposed to the NATO doctrine of 'flexible response', French nuclear doctrine is to threaten to escalate a conflict into an all-out strategic nuclear war. Fourth, France does not accept the possibility of Europe as a nuclear and conventional battlefield, and will not participate in such a battle with its tactical nuclear missiles (Tinseau, 1983:78).

The arsenal of tactical weapons has been termed 'prestrategic' to clearly show the linkage between them, as a final warning, to massive retaliation of the strategic nuclear forces. France will only employ the prestrategic weapons in an 'ultimate demonstration' to show the French determination to launch its intermediate-range ballistic missiles (IRBM) and submarine-launched ballistic missiles (SLBM) on the Soviet Union. French deterrence is based on the policy to defend France's *ouvres vives* ('vital interests'), basically, French territory, which promises to inflict unacceptable destruction upon an aggressor. In part, the Soviets are supposed to be deterred by recognizing that the damage French missiles could inflict might be serious enough to permit for the USA to dominate a war termination process. Obviously France can not match the Soviet Union's nuclear forces, having only about four per cent of the world's accumulated missiles—of which the Soviet Union has a majority. By targeting population centres instead of Soviet military forces or bases, France intends to carry out a deterrence that does not threaten the Soviet strategic forces. If the Soviet Union feared a French nuclear attack on its strategic nuclear forces, it could result in a Soviet move to pre-empt French forces in times of crisis. An expert on French security policy, David Yost, writes that the declared French policy which stressed the 'anti-cities' approach, meant the targeting of population centres up until the early 1980s, but the policy developed from the mid-1980s places greater emphasis on threatening to destroy the infrastructure of the Soviet economy and administration. This principle is simply the targeting of the Soviet Union's *ouvres vives* (Yost, 1984a:15).

The French doctrine also stresses the concept of national territory as a 'sanctuary' which, if attacked by an aggressor, would justify the immediate use of the French nuclear weapons in retaliation. The motive for this concept is the French expectation that an aggressor would then avoid any kind of conflict with France. The 'sanctuary' concept has been disputed many times by those in the French defence-policy establishment. A key-military analyst, François de Rose, wrote that even 'for our own territory, the official doctrine is losing in the case, for example, of a Soviet attack with non-nuclear or chemical weapons against our air bases and communications means indispensable for the common defence. The "sanctuary" would be indisputably struck. Would we be ready on that account to undertake strategic nuclear strikes, knowing that they would entail in retaliation the disappearance of our entire country in a few minutes?

The theory of the risk superior to the stake could then turn against us.' (de Rose, 1985:2) These words are obviously strikingly similar to and parallel the credibility crisis with the US/NATO doctrine of massive retaliation of the 1960s, at least until the doctrine of 'flexible response' was developed in the 1970s.

A current dilemma for the French defence-policy establishment is how to combine the policy of French territory as a 'sanctuary', with French moves in the direction of interdependence with its NATO allies, particularly the FRG and Great Britain. French defence spending and the general defence doctrine could lose public support if France attempts to broaden the role of its nuclear forces. The USA wants for France to increase its commitment of conventional forces to NATO, and to accept responsibility for a region in the forward defence of the FRG. The FRG also hopes that France will play a greater conventional role and will offer its nuclear forces, particularly the prestrategic forces, in the service of a wider concept of European defence. The Soviet Union has an increasingly valid point in that French forces play a key role in NATO, and that France should have its nuclear arsenal included in disarmament negotiations. France's economic vulnerability and its uncertain position in an increasingly interdependent Europe are strong reasons why France should abandon the traditional independent, non-automaticity, nuclear defence doctrine. Even French strategists, such as Jean-Paul Pigasse, have argued for an abandonment of the national sanctuary theory in favour of a European nuclear defence (Rudney, 1984:93).

Another element in French defence policy is the relative weakness of the French conventional forces compared to those of the Allies. Strengthened French capability in this field would contribute significantly to the defence of West Europe together with other NATO forces, and thereby improve the defence of French territory. First, France would have to change its defence doctrine to accept the idea of a prolonged conventional warfare and, to reduce expenditures on the nuclear forces, before there could be any significant increase in spending on the conventional forces. The AMX Leclerc main battle tank (MBT), the Franco-German helicopter programme and the Force d'Action Rapide (FAR) represent steps in the direction of improved conventional defence capability. But because of the: (a) tremendously expensive nuclear programmes, the *Charles de Gaulle* aircraft carrier, the l'Inflexible class SSBNs, the Hadès, S4 and M45 missiles, (b) the cost overruns of the AMX Leclerc MBT and Rafale fighter aircraft programmes, and (c) the reluctance of the Minister of Finance, Jean-Pierre Bérégovoy, to allocate certain funding planned for in the 1987–91 Military Programming Law to the Armed Forces. France's conventional programme will inevitably face obstacles for most of its current projects.

In a 1987 study, US Army Colonel J. A. Berry estimated that the tactical operational doctrine in the early 1980s for French land-air forces in the Central Region required 70 Pluton SRBMs and air support from the French tactical air force (FATAC) with about 15 warheads. These forces would be targeted against the first wave of Warsaw Treaty Organization (WTO) forces before they could cross the Lorraine. The WTO forces could then be channelled in a direction favourable for a French nuclear weapons attack. With the necessary presidential approval, French nuclear weapons could then be fired, but only at military targets farther than four km away from populated areas with more than 5000 inhabitants (Berry, 1987:34–35).

The French targeting doctrine with the anti-cities concept is less demanding than, for example, that of the British. The French doctrine lacks a 'Moscow-criterion', which simply means that some strategic nuclear warheads have to be targeted on the Soviet capital. Thus, Great Britain has to take into account the Moscow anti-ballistic missile (ABM) defence which, if it is in compliance with the ABM Treaty, has (no more than) 100 interceptor missiles (Froman, Gardner and Mixer, 1987:301).

To maintain the principle of non-automaticity and to avoid the necessity for nuclear consultations with one or more allies, France keeps its prestrategic Pluton SRBMs, in Alsace, assigned to the 2nd French Army Corps in the FRG. Because of their range, the Pluton missiles could not strike territory further than Frankfurt, something which is extremely upsetting to the West Germans. France defends itself by involving its traditional doctrine: namely, that the Pluton missiles would be very effective against WTO forces after a breakthrough of NATO's lines in a forward battle in the FRG. France refuses to grant the FRG a veto over the French use of nuclear weapons and accepts no decisive outside influence over the French missile targeting or planning for possible use of its nuclear arsenal (Yost, 1988:185–86). Mitterrand firmly rejects either a nuclear-free zone in Central Europe or an extension of the French nuclear umbrella to cover the FRG (which the FRG was anxious to receive) if the USA withdraws its European nuclear weapons. For many years, a divided Germany was the cornerstone of the European system according to a united French foreign-policy establishment. The reunification of Germany, they argued, would very likely upset the present balance sooner or later (Johnstone, 1984:124–25). After the recent developments in Eastern Europe and the results of the election in the GDR, France supports reunification, but favours the association of the GDR with the EC to prevent a united Germany from becoming neutral

Most observers consider France's best shot at achieving a credible deterrence is to maintain and improve a sufficient second strike capability. In a prize winning article, US Navy Captain John J. Hyland III stresses the importance of the definition of what actually constitutes unacceptable damage to the Soviet Union (1985:72). The 'assured destruction' theory that US Secretary of Defence Robert McNamara introduced in the 1960s was the ability to destroy 20-25 per cent of the population and 50-66 per cent of the industrial capacity of the Soviet Union during a second strike (Hyland, 1985:72). The destructive power necessary for this kind of operation was marked at 200-300 Equivalent

Megatonnage (EMT) in 1974 by the political analyst Gregory Kemp (Kemp, 1974:25–27). In Hyland's estimates, France will have about 162 EMT in 1992. Gregory Kemp wrote, however, that attacking the ten largest cities would jeopardize 25 per cent of both the urban population and the industrial capacity. About 10 EMT would suffice to meet this requirement, which the French Force Océanique Stratégique (FOST) would manage many times over. Hyland also reiterates Lothar Ruehl's argument that France should focus on key industrial cities and fewer cities with less protection than Moscow. This would enhance the chances of a successful strike, and France could even announce not to attack Moscow at all, prior to nuclear exchange, to reduce the risk of a devastating attack on Paris (Hyland, 1985:73).

It is very likely that the exact targeting of the French nuclear missiles is known to no more than 10 people. All land-based French nuclear weapons are stationed on French territory, and widely dispersed to decrease the risk that a pre-emptive attack from the WTO could be successful. According to Arkin and Fieldhouse, France had 514 warheads in 1985, of which 270 could be delivered against targets in the Soviet Union, 204 were reserved for battlefield purposes, and 40 were available for use in the Third World (1985:39–57). The second strike deterrent then consisted of four SSBNs with 48 missiles. French nuclear deterrence depends on the credibility that of the USA, and can not under the present circumstances serve as a substitute. Even in the mid-1990s, France is likely to have no more than 700 strategic warheads for use in an attack on the Soviet Union—which is about 7 per cent of the number of warheads the Soviets had themselves in 1987 (Joffe, 1987:7).

Several French military strategists have argued in favour of enhanced radiation warheads in the number of hundreds as a 'super artillery' against WTO conventional forces. Mitterrand himself has compared enhanced radiation warheads to artillery shells and reportedly wanted to place them in the category of conventional weapons, even though, he added, that their use would require 'great political control' (Isnard, 1987b:3). Minister of Defence Jean-Pierre Chevènement does not favour a neutron bomb, arguing that its tactical use would inevitably draw France into the concept of 'flexible response'.

Production of a French neutron bomb is not supposed to begin unless the disarmament efforts between the superpowers fail. Nevertheless, the Hadès missile, for example, is designed to have the capability to carry neutron warheads.[1] Production could also imply French abandonment of the final warning strategy in favour of a battlefield approach to nuclear weapons. At the same time, the use of neutron warheads, as warning shots, would make that warning even more serious, than with regular nuclear SRBMs. The problem would still remain, however, of the SRBMs possibly fired on FRG territory, with continuing strong German protests about that prospect.

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[1] The first testing of a French neutron bomb took place on the Moruroa atoll in the Pacific in August 1981. See *Le Monde* (1983:46).

There is little doubt about the fact that for many years France has enjoyed full protection from the USA, both from the US troops in the FRG, the intercontinental ballistic missiles (ICBM) in the USA, and the Pershing IIs in Europe. These three elements have enabled France to maintain its doctrine of massive retaliation and non-automaticity. A US withdrawal from Europe would, thus, force France to entirely reconstruct its defence in collaboration with its West European neighbours. One possible outcome, according to David Yost, is that it would force France to drop its demand to have an independent nuclear force, and extend its 'sanctuary' to cover the FRG. Yost writes: 'The French argue that, since their armed forces constitute the sole operational reserve of the Alliance based in Europe, the flexibility of their employment should not be burdened with a specific pre-established assignment' (1988:180).

For many years, the Soviets tried to include both British and French nuclear forces included in disarmament talks, but France has refused with the argument that both superpowers have first to reduce their nuclear forces. France has also stressed that the French nuclear forces are independent from NATO's and crucial to its national deterrent. With the recent disclosures of US advice and technical assistance (Ullman, 1989:3–33; Webster, 1989c:5) to the French nuclear forces since the 1960s, France should expect to hear the Soviets demand French participation in the Strategic Arms Reduction Talks (START) (O'Ballance, 1989:349).

II. The nuclear forces and space technology

The French triad of nuclear forces are grouped under the Forces Nucléaires Stratégiques (FNS): the SSBNs in the FOST, the IRBMs and the strategic bombers in the Forces Aériennes Stratégiques (FAS). Together in the FNS there are 256 SLBMs, 18 land-based S3 IRBMs, and 18 strategic bombers in the FAS (Fieldhouse and Taoka, 1989:86 and 89). These are all relatively sensitive to pre-emptive attack, technological advances that would out-date them and their own ageing and budgetary restraints. Anthony Cordesman estimates that a preemptive strike by the Soviet Union could very well destroy all the S3 IRBMs and all aircraft on the ground (1983:78). France's surviving aircraft would be too few to have any chance of even getting past WTO fighter aircraft, and it is not entirely certain that the NATO allies would be, or would want to be, involved at this point.

The problem is likely to be the same for the French nuclear missile-carrying Super Etendards on the two aircraft carriers. French defence officials generally speak of a policy to keep at sea at least three of the six SSBNs, with the implication that, at best, three SSBNs would survive a Soviet missile attack, because they would be out at sea. Soviet anti-submarine warfare (ASW), together with its ABM-defence could reduce the punch of a French second-strike attempt with the SLBMs. France had wanted to improve the FAS with the

Avion du Combat Future (ACF) aircraft, but had to abandon it in favour of the less costly and less advanced Mirage 2000 (Hyland, 1985:69).

It is the SSBNs which would have the best chance of surviving a first-strike attack. The major change in the FNS is also the increased number of warheads carried by the SLBMs through the multiple independently targetable re-entry vehicles (MIRV) which came into service in 1985.

The SSBNs and SLBMs

The first French nuclear submarine project, the hunter-killer named *Q244*, was begun in 1954. At the time, France could still obtain enriched uranium from the USA. In 1960, the role of the French Navy within what was called the 'strike force' was defined, and the work began on the *Q.252*, which became the first nuclear missile-carrying submarine, *Le Redoutable* (*Defence*, 1981:561).

Today, France deploys 11 nuclear-powered and 14 conventionally powered submarines. For France, SLBMs comprise 87 per cent of its strategic arsenal, compared to 43 per cent of the USA and 31 per cent of the Soviet Union (Fieldhouse and Taoka, 1989:84). In 1985, the FOST carried almost 60 per cent of the warheads in the FNS (Hyland, 1985:68).

The FOST consists of five Redoutable class SSBNs: *Le Redoutable, Le Terrible, Le Foudroyant, L'Indomptable* and *Le Tonnant*, and one of the new l'Inflexible class SSBNs. The five Redoubtable class SSBNs, were armed with 16 M20, 3 kt missiles with a range of 3000 km until 1987. Up to this point, the Soviet Union required only about 150-200 warheads to destroy virtually all of France's nuclear forces, plus the entire FATAC, and almost certainly all of the IRBMs and the strategic aircraft (Cordesman, 1983:78). Modernization, however, with the first l'Inflexible class SSBN, in 1985, carrying 16 MIRVed SLBMs—the M4 missile, each of which carries six 150 kt warheads and has a range of 4400 km—has doubled the number of FOST warheads in one step. Modernization of the last of the Redoutable class SSBNs will take place during 1990 (*International Defense Review*, 1990b:204). With the implementation of the M4 programme, the French SSBN force will be expanded from 80 warheads on five submarines in 1985, to 576 warheads on six submarines in 1992. As of 1991, France will have 288 warheads stationed at sea permanently. The original *Le Redoutable* is planned to be retired in 1995.

The new l'Inflexible class requires much less time in port than the other SSBNs. In addition, only one warhead from the very accurate M4 missile is necessary for several targets, and only three warheads to major targets like Moscow. This will enable France to inflict enough damage upon the Soviet Union to force the Soviets, almost in self-defence, into launching a general war against the other NATO allies (Cordesman, 1983:78). The M4 missile is in fact designed to penetrate the Moscow ABM system (Fieldhouse and Taoka, 1989:103). There is also the strategic advantage for France with the M4 missile that the SSBNs do not have to transit to the Norwegian Sea to reach their

Table 7.1. French nuclear forces.

Weapon system Aircraft	Warheads deployed	Year of deployment	Range (km)	Warhead x yield (kt)	Type
Mirage IVP/ ASMP	18	1986	1500	1x300	TN-80
Mirage 2000N/ ASMP	45	1988	1570	1x300	TN-81
Jaguar A/ bomb	45	1974	750	1x6-8/30	AN-52
Mirage IIIE/ bomb	15	1972	600	1x6-8/30	AN-52
Tanker aircraft					
Boeing KC-135	11	1965	..	..	..
Land-based missiles					
S3D	18	1980	3500	1x1 Mt	TN-61
Pluton	44	1974	120	1x10/25	AN-51
SLBMs					
M-20	64	1977	3000	1x1 Mt	TN-61
M-4A/MIRV	6x16	1985	4-5000	6x150	TN-70
M-4B/MIRV	6x16	1987	6000	6x150	TN-71
Naval Aircraft					
Super Etendard/ bomb	36	1978	650	1x6-8/30	AN-52

Sources: SIPRI (1989:19; and IISS (1989:59).

targets, but can stay 'at home', thus, are much more secure and easily defended. A new submarine model of the Triomphant class is supposed to be introduced into the FOST in 1994, fitted with M45 SLBMs (the M5 missile programme has been postponed until the beginning of next century in favour of the less costly M45 version of the M4) and will be the seventh submarine in the SSBN fleet. A second, *Le Téméraire*, is expected to enter service in 1997 (*International Defense Review*, 1990a:203). Six SSBNs of the Triomphant class will be built to replace the Redoutable class, with the last entering into service in 2008. SSBNs of the Triomphant class will run more quietly and be able to dive deeper than the others.

The FOST is based at Ile Longue in Brest, and the submarines are dispatched on patrols of two months duration in the eastern Atlantic off the coast of France and Portugal. Three French submarines are at sea at any time, and French policy is to have a fourth available at all times for patrol.

To back up its SSBN force, France maintains a small four unit fleet of nuclear attack submarines of the Rubis class, and one the new Améthyste class. France is improving the capability of this fleet to hunt other submarines, approaching the effectiveness of surface ships. The first Améthyste class, Sous-marin Nucléaire d'Attaque (SNA) was delivered in 1988, and is the first out of four multi-role SNAs that the French Navy has ordered to be delivered (the others will be named *Perle*, *Turquoise* and *Diamant*). The fourth Rubis class submarine, *l'Emeraude*, became operational in September of 1988. During the next decade, the first four ships of the Rubis class will be upgraded to Améthyste standard, and the French Navy also plan to launch a new generation 4000 ton SNAs (Turbé, 1989:33; and Sharpe, 1989:173).

To further enhance the nuclear deterrent of the French submarine force, four Avion Station Relais de Transmissions Exceptionelles (ASTARTÉ) command, control, communications and intelligence (C^3I) aircraft have been purchased in co-operation with Great Britain. The ASTARTÉ system is designed to facilitate communication with submerged submarines, and transmit orders in conditions of severe electromagnetic pulse caused by high-altitude thermonuclear explosions. To the extent that France can enhance the survivability of its submarine fleet, the significance of the prestrategic nuclear forces is also strengthened.

Submarine fighting capabilities

Rear Admiral Richard Heaslip, former NATO commander of NATO's submarine forces in the Eastern Atlantic, has expressed strong reservations about the French submarine capability to combat its Soviet counterparts and surface combatants. Although the French SNA Améthyste class is, at least according to the French, supposed to have excellent anti-submarine capabilities, Heaslip maintains that 'it is too much hope to think that Soviet submarine technology would stagnate meantime'. He adds: 'French SSNs [SNAs] are too noisy to be anything other than hunted, too slow, use passive sonars which makes it hard to maintain a direct course because of manœuvreing demands of target motion analysis, the submarines have to slow down to four knots to be able to obtain firing approval via the mast-mounted antennas, and the French submarine force does not have the necessary experience in under-ice operations'. Hence, it is up to the FOST to prove that its submarines are capable of serving as a second-strike weapon for massive anti-cities retaliation (*International Defense Review*, 1989a:393–95).

Unless submarine tracking undergoes great advances, France may be able to continue basing its nuclear deterrent on the FOST for a time. Diana Johnstone has advanced a scenario in which Soviet tanks roll in across the FRG, but the USA declines to launch its nuclear weapons. If France fired its nuclear weapons, then the likely response from the Soviet Union would be massive retaliation and total destruction of France. However, if France fired its nuclear missiles from submerged submarines, then the Soviet Union might not be able to determine who attacked. What would the Soviet Union do in this case? Would it risk a full-scale nuclear exchange with the USA, a more likely candidate (than France) to have launched an attack.? Unlike Great Britain and the USA, France does not have nuclear weapons explicitly designed for anti-submarine warfare (ASW), and will not have that capability in the foreseeable future. However, improvements in ASW of French submarines and surface ships (France will have a total of 12 ASW destroyers by the turn of the century if current plans are met) will contribute in strengthening the power of the French submarine deterrent (Yost, 1984a:55; and Turbé, 1988a:236).

The IRBMs

In the case of the silo-based French IRBMs, 18 missiles of the S2 version were deployed in 1971, on the Plateau d'Albion in Haute Provence. The 18 S2s were two-stage, solid-propellant missiles, carrying a single 150 kt warhead and had a maximum range of 2750 km. The S2s were replaced in 1980–81 with 18 missiles of the current S3 (or S3D), also a two-stage missile, but with heavier payload and longer range (Laird, 1984:391). The 18 sheltered, ground-based, S3s have a single one-megaton warhead, a 3500 km range, but have only about 30 per cent of the physical protection of the US Minuteman missiles and possess only moderate reliability and accuracy (Cordesman, 1983:78). If the 18 S3 IRBMs would be attacked by an aggressor, their mission is to act as a lightning rod, to justify the massive retaliatory attack by French SLBMs, making the SSBNs the second-strike weapon.

It is the French Air Force command centre in Taverny which, with presidential authorization, would activate the IRBMs. The missiles are spread over an area of 36 000 square km and controlled by two firing units, each in command of nine missiles (IISS, 1989:61).

The Military Programming Laws of the early 1980s had planned for the deployment of an S4 missile to replace the S3, but this development has been postponed until the around the year 2000. The S4 missile has low priority because of lower than expected performance on trials. Other programmes are also in greater need for additional budgetary allocations, for example, the priority development of the Hadès SRBM and the M4 and M45 SLBMs. The original intention with the S4 was to have its range increased to lift it from the INF classification of 400-4000 km, which both superpowers have agreed to eliminate. France has not signed the Intermediate-range Nuclear Forces (INF) Treaty, which is a bilateral agreement between the USA and the Soviet Union, but may attract universal condemnation for keeping the S3s (O'Ballance, 1989:348). The planned SX missile to replace the Mirage IV strategic bombers (Laird, 1984:401) was entirely dropped from the agenda in 1984. It had been announced that the S3s would be in service until 1996, the same year that the SX would replace the Mirage IV, but the French Government did not link the S3 and SX programmes (Laird, 1984:401). During the co-habitation period in

1986–87, a public dispute developed between Mitterrand and Chirac concerning the future of the S3. Chirac favoured the mobile S4, but Mitterrand argued that the movement of the missiles (in vehicles disguised as yoghurt-carrying trucks) would increase anxieties among the population (Isnard, 1988h:1050). Now both the S4 and SX are, more or less, discontinued in favour of an upgrading of the SSBN force, with the S3 remaining in service until the beginning of the next century. Meanwhile, talks are underway to decide whether there could be a ground-to-ground missile derived from the M4/M45 submarine launched missiles to succeed the S3.

A new strategic air command to supplement the operational centres in Taverny and the one in Mont-Verdun (Lyon), is being installed at Evreux. This new headquarters is designed to replace the other two headquarters if they are put out of action, and to transmit presidential authorization of a launch of the nuclear missiles (Isnard, 1990a:54).

The strategic air force

In 1985, the Forces Aériennes Stratégiques (FAS) had four squadrons of altogether 34 Mirage IVA bombers with AN-22 70 kt nuclear bombs, and a range of 3200 km. The squadrons were located at four bases in France, supported by five additional dispersal bases. These aircraft were replaced by 18 Mirage IVP and 36 Mirage 2000 aircraft with the new ASMP missile in 1988. For the bombers to strike deep into Soviet territory, there are 11 Boeing KC-135 tanker aircrafts to allow for aerial fueling (IISS, 1989:59). The Mirage IV are planned to be retired after 1996, depending on possible delays in the Rafale programme. The French Air Force plans to replace the Mirage IVs with a strike version of the Rafale D, which with its greater range, stealth character and ability to carry the future long-range ASLP missile (1000-1200 km) would be a significant strengthening of the French nuclear deterrent (Isnard, 1990d:580)

The ASMP missile has greatly enhanced the survivability and strength of the nuclear missile-carrying aircraft by its increased payload, by 3 to 10 times, and by not having to pass directly over the target. The ASMP has a range of 300 km which would allow for the French Air Force to threaten targets in the eastern part of Europe, without forcing its carrier to fly over enemy territory.

The SRBMs

The Pluton SRBMs are deployed within an independent command of the Army. The first missiles were deployed in 1971 (Laird, 1984:395), and today, there are 42 launchers, of which 30 are armed with nuclear warheads. There are five Pluton nuclear artillery regiments with a total of more than 6000 men, composed of three batteries (each with two missile ramps) to support a total of 30 Pluton missiles. Mounted on the chassis of an AMX-30 armoured vehicle, the Pluton missile has a range of about 120 km and can deliver a 15-25 kt charge (Kolodziej, 1982:203). The Army's future prestrategic nuclear weapon, the mobile Hadès missile (dual-capable) with a 350-500 km range and ability to carry a 10-to-25 kt nuclear warhead, a neutron bomb, a conventional warhead or chemical agents, will replace the ageing Pluton SRBM in 1992. In April 1989, France, reportedly, could manufacture 200 Hadès missiles with 20-60 kt warheads, with an expected initial order of 90 units (Webster, 1989a:4). Other sources put the warhead capability at 80 to 100 kt (Westerlund, 1990:44). The French Army .plans to purchase altogether 180 Hadès missiles (SIPRI, 1989:32).

The Hadès division will comprise three artillery regiments, and the first will be installed with the 15th Artillery Regiment at Suippes in the Marne region of eastern France. The second will be stationed with the 3rd Regiment at Mailly in the Aube region, also in eastern France. The details concerning the final third have yet to be decided, but Belfort has been mentioned. The Hadès division will also have the RITA communications net, a Mistral surface-to-air missile battery and a support battalion (Isnard, 1989:419). The Hadès system will be disguised to resemble a semitrailer, which will be capable of carrying two 7.2 metres missiles with inertial guidance systems powered by solid propellant motors (Westerlund, 1990:44).

The French Chief of Defence Staff, General Maurice Schmitt, has said that France would not be prohibited from relocating the Hadès missile into the FRG in a time of crisis, which is the case with the Pluton missile (*Air et Cosmos*, 1989b:5). Mitterrand has stated on several occasions that the missiles are only of 'final warning' characters and are not to be used as battlefield weapons. However, the fact is that if the missiles can be moved into the FRG, it will greatly expand French power alongside Allied forces, and may also serve to lower German anxiety that the missiles would fall on German territory.

The Hadès missile is supposed to be placed under the command of the Chief of Defence Staff, thereby, in fact, opening up the possibility of using it as a battlefield weapon. It also has the deterrent value in that it is permanently situated in Europe, because of its mobility, and is expected to be less easily intercepted by enemy missile defences. Critics say that it makes the doctrine of 'the weak against the strong' outdated, and is a step closer to the NATO doctrine of 'flexible response'. Supporters say that it is a sign that France no longer accepts isolation from its European allies, and has started to build on a common European defence (Isnard, 1988e:31).

Although the deployment of the Hadès missile has become increasingly sensitive because of the German unification plans, France has no plans to scrap the missiles. The Chief of Defence Staff, Maurice Schmitt reportedly said that the reduced force levels proposed so far in the START talks are still too high to attract French participation (Isnard, 1990e:28). According to Jaques Isnard, France could very well decide unilaterally to cut the Hadès regiments from three to two, but the possible use of the missiles will remain ambiguous. Minister of Defence Jean-Pierre Chevènement is even reported to have said that the old Tous Azimuths Doctrine is now more than ever real (see chapter 2). In other words, France's nuclear deterrent is not directed at any particular enemy, but in all directions...(Isnard, 1990e:28).

Communications and Space research and development

The Director of the Ministry of Defense Strategic Planning Group, Jean-Yves Leloup, and Pierre Cazalas have defined the objectives of French space policy, giving two prominent reasons for developing an independent capability (1986:133). First, it would sustain the nuclear deterrent, and second, it would be available for crisis management. In the first case, satellites and a ground-based infrastructure capable of observing, listening, and communicating from space would greatly enhance the French submarine deterrent, now being dependent on the US Navigation System Using Time and Ranging (NAVSTAR) for navigation, for example. An improved satellite network would enable France to better protect, particularly, its nuclear forces, especially against anti-ballistic weapons. The French command structure would also benefit from these space-based assets, allowing for the French command to stay in touch with all French forces in every part of the world (Leloup and Cazalas, 1986:134–35). As Leloup and Cazalas saw it, the space programmes had to be matched by political measures. He felt that the ABM Treaty acted as a significant hedge against a Soviet ABM defence system which would neutralize French nuclear forces. Beyond these military realities, France views space as a priority political arena, both for its European co-operative possibilities, and for the obvious technological and psychological prestige. The continuing work on the Hermès space-shuttle project—under 1985 contract awards from the French National Space Research Centre (CNES) to Aérospatiale and Dassault-Brequet—is evidence of France's desire to be counted among members of the future community of space. The French are not, however, convinced that the US SDI programme, as it was originally perceived, will ever work. As a November 1988 French Parliamentary report stated: 'It is not necessary to describe here the Strategic Defence Initiative...The Americans themselves are today conscious of the impossibility of the original system.' The Americans had argued on the contrary that the French should be somewhat more concerned by the Soviet ABM developments. The SDI Organization, in its 1985 Report to Congress said: 'Soviet doctrine and ballistic missile defence activities will have a continuing impact on French and United Kingdom nuclear forces.' (Berger, 1989:84–88).

It was the French commercial Satellites Pour l'Observation de la Terre (SPOT) satellite that gave international audiences the first pictures of two controversial facilities in the Soviet Union—the radar installation near Krasnoyarsk (admittedly violating the ABM Treaty) and a laser facility north of the Afghanistan border. It is also the SPOT which supplied the FRG with pictures of the Rabta chemical weapons facility in Libya (Krepon, 1989:35).

After the Système de Radio-Communication Utilisant un Satellite (SYRACUSE), the Helios satellite now becomes France's second largest military space programme, for which the 1987 budget allocates $17.2 million (FFr 120 million) in outlays and $80.4 million (FFr 560 million) in authorization for the programme. The Helios space satellite will be launched from the French space centre in Kourou in French Guiana after July 1993, and will have a life expectancy of about three years. It will be equipped with two telescopes providing a resolution of 1 m compared to 10 m for the SPOT. The Helios is developed in co-operation with Italy (14 per cent) and Spain (7 per cent). The French Government has decided to launch the SYRACUSE II programme when the SYRACUSE I's operational life ends, around 1991–92, and is considering co-operation with other nations to finance SYRACUSE III (Denarié, 1989:57). This programme of three satellites, costing about $195 million (FFr 1.36 billion), will be launched in July 1991 as part of the civilian Télécom-II telecommunications satellite (*International Defense Review*, 1987:268). The purpose of the programme is to make France's military observation fully autonomous. Today, France subscribes to the US satellite system. Funding for equipment purchases were raised from $109 million (FFr 757.7 million) to $195 million (FFr 1.36 billion), that is 79.8 per cent, while new programme allowances reach $397 million (FFr 2.764 billion), or 59 per cent. Between 1987 and 1991 the space budget is set to multiply six-fold (Schwartzbrod, 1988:162–68).

Jean-Pierre Chevènement approved a 15-year military space plan in 1988 which renewed emphasis on European co-operation and increased funding. The budget of $6.46 billion (FFr 45 billion) placed the emphasis on three main programmes; the electronic intelligence satellite, the radar-based reconnaissance satellite and the ground-based surveillance radar. European co-operation will particularly concern the multi-national Ariane programme within the European Space Agency (ESA). The target date for the launching of the Ariane 5 and the Hermès is still 1998 (Berger, 1989:84–88). Because of budgetary restrictions, it was decided in the spring of 1990 to scrap the plans for the radar-based reconnaissance satellite and instead concentrate all efforts on the optical satellites. Plans for the radar-based satellite originated from the French attempt to become independent in retrieving reliable information from remote sensing. The first radar-based satellite is believed to have been launched by the USA in 1988 (Trust & Verify, 1990:3).

France has reached an agreement on a 1992 manned orbital mission with the Soviet Union, and is also seeking to expand its co-operation with the USA to attain a balance between East and West in its bilateral space efforts. Current co-operative Franco-American programmes include the Topex/Poseidon satellite mission to be launched in June 1992 for ocean circulation monitoring, the Rhesus biological missions with two Rhesus monkeys planned on a NASA shuttle orbiter in early 1993, and the Mephisto materials processing experiment with NASA in 1992. The amount of money provided by France for the Rhesus mission is about one-half of the French funding for the scientific payload on the 1988 flight of French *kosmonaut* Jean-Loup Chretien on the Soviet Mir station.

France has also sent one astronaut as a payload specialist on a NASA shuttle orbiter in 1985. One reason for French co-operation with the Soviet Union is the US reluctance to give access to its facilities for the development of the Hermès space-shuttle. The Soviet-French bilateral protocol approved during President Gorbachev's visit in Paris in July of 1989 includes French consideration of using Soviet wind tunnels and other test installations for the Hermès (Lenorovitz, 1989:34–5). France also co-operates with the Soviets on a gamma ray satellite programme with three telescopes, to obtain predetermined regions in space (*Defense & Armament Héraclès International*, 1990:16).

Because of the exponential increase in military digital data transmissions in France over the past few years, the French Armed Forces has proposed a $1.53 billion (FFr 10 billion) programme named Socrates to completely modernize the networks of the strategic forces in central France. There are currently three networks for the three branches of the armed forces, and Socrates would replace them all. France possesses the necessary industrial know-how to develop this network and the large orders would greatly benefit French technology companies (Antoine, 1990b:45).

With the network of French spy, communications and navigation satellites orbiting in the mid-1990s, covering every part of the earth, France will possess, for the first time, an entirely independent military defence of truly global calibre.

8. The structure and organization of the Armed Forces

I. Introduction

As stated by Jean de Galard,[1] French defence policy presents the French Armed Forces with five main missions: (a) to guarantee the integrity of the national territory against any attempt at foreign aggression, so as to maintain the freedom of her country; (b) to operate the nuclear deterrent force which, in all circumstances, remains the essential basis of French security; (c) to participate in the defence of Western Europe, in close collaboration with the other NATO nations; (d) to protect French interests in any part of the world and to implement defence agreements concluded with friendly countries; and (e) to participate in peace-keeping actions and to carry out certain public service tasks (de Galard, 1987:124).

France has an all-male conscription with 12 months service, which can be extended voluntarily to 16-24 months (IISS, 1989:59). In reality, about 55 per cent of the armed forces personnel are professionals: the Air Force 62 per cent, the Navy 71 per cent and the Army only 37 per cent professionals (except for the rapid deployment force, which is comprised of 80 per cent professionals) (Arnaud de Foiard, 1989:36-37).

The number of troops in the armed forces has declined by more than 50 per cent since 1960. That year, the total number of troops was 1 026 000 in active duty, in the aftermath of the Algerian War of Independence; in 1970, 506 000 troops; in 1980, 494 730; and in 1989, 466 300 troops (All according to IISS 1960:10; 1970-71:26; 1980-81:25; and 1989-90:59).

In 1989-90, there was actually a slight increase in the number of troops from the year before, partially due to an increase in the number of conscripts. Of the troops in active duty today, there are 13 500 women and 240 100 conscripts (including 3600 Central Staff, 8700 (2000 conscripts) *Service de Santé*, 2200 and *Service des Essence*.) The reserves comprise 353 000 divided into 267 000 for the Army, 28 000 for the Navy and 58 000 for the Air Force. Included here should also be the 87 000 para-military *gendarmerie* —the police force (IISS, 1989:59 and 62). In times of crises, the policeforce will, in addition to responsibility for ensuring internal order, guard 'sensitive installations', among which are all nuclear weapons installations, nuclear power plants and communication networks. A special branch of the *gendarmes* is designated the sole job of guarding the nuclear weapons stored on board the two aircraft carriers (Chilton, 1984:158).

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[1] Jean de Galard is deputy editor-in-chief of *Air & Cosmos*.

Military presence outside of France

France has military installations in the FRG (50 000 troops, Berlin: 2700 and the Franco-German Brigade: 4200); Antilles-Guiana (8000 incl. one Foreign Legion regiment); Indian Ocean (3300 incl. one Foreign Legion regiment); New Caledonia (9500 incl. one marine infantry regiment); Polynesia (5000 incl. one Foreign Legion regiment); Central African Republic (1200); Chad (1900); Djibouti (3900 incl. one Foreign Legion, one artillery, and one ALAT regiment); Gabon (550; one marine infantry regiment); Ivory Coast (500; one marine infantry regiment); Senegal (1200 incl. one marine infantry regiment); Lebanon (UN Interim Forces in Lebanon [UNIFIL]: 1750); and Egypt (Multi-National Force and Observers [MFO]: 40) (IISS, 1989:65).

Because France does not have enough land in Europe to test and develop its nuclear arsenal, it is greatly dependent on its overseas possessions. After the sites at Reggane, Ahaggar and Hammaguir in Algeria were closed in 1967, French nuclear explosions, missile tracking and telemetry monitoring have been carried out in the French Polynesia, French Guiana and Las Palmas (the Canary Islands), respectively. Facilities in Portugal's Azores have also been used by France for these purposes, involving tests of SLBMs and IRBMs over the ocean launched from France's Atlantic coast (Harkavy, 1989:235).

The Navy

The French Navy has, according to M. Crespin (1976:8-11; and Roberts, 1980:20) four missions: (a) to participate in nuclear deterrence (providing and protecting the SSBN force), (b) to maintain surveillance over and, if necessary, defending maritime approaches to France, (c) to retain at sea and overseas the freedom of action needed (no expansionistic aim, but as wide a range of response choices as possible to aggression, especially against indirect strategies aimed at defeating France outside of its territory by actions against oil and raw material supplies) and (d) Coast Guard functions.

The Navy is also supposed to be able to participate in peace-keeping operations managed by international organisations, and in the framework of the defence agreements France has with NATO and its francophone, former colonial, allies (Roberts, 1980:6 and 14).

There are five commands in the French Navy; one strategic submarine—the Admiral in charge of the FOST (ALFOST), two home—the Commandement en Chef des Forces Françaises Atlantique (CECLANT and the Commandement en Chef des Forces Françaises Méditerranéa (CECMED) and two overseas—the Admiral in charge of the Indian Ocean (ALINDIEN) at Papeete, La Réunion in

Table 8.1. Major naval forces.

Country	PSC[a]	Carriers[b]	Submarines[c]	Aircraft[d]	Helicopters	Mine wf[e]	Patrol/Coastal[e]	Men[g]	MBTs[g]	Helicopters[g]
France	42	2	16	97	37	24	23	1900	91	8
USA	215	14	98	1924	273	29	30	51000	1316	182
USSR	260	4	280	918	254	37	410	17000	752	10
UK	47	2	27	87	115	38	44	2500	112	11
FRG	14	0	24	133	34	56	45	0	0	0
China	56	0	92	294	65	56	915	6200	374	0

[a] Peacetime Surface Combatants.

[b] Aircraft carriers.

[c] Submarines including nuclear-powered (except the FRG).

[c] Aircraft and Helicopters: both organic air (embarked in a fleet with all air-capable ships at full normal air complement).

[e] Mine wf: all permanent mine warfare units in operational condition including vessels allocated to reserve units as training craft.

[f] Patrol and Coastal Combatants: all vessels in this category under naval command in peacetime.

[g] Amphibious lift: military force that specialist amphibious vessels can deliver, in numbers of men, main battle tank (MBT) equivalents (at 50 tonnes or 30 square metres per MBT) and transport helicopters. Number of MBTs and helicopters for the USA excludes capacity of US Marine Corps prepositioned shipping.

Sources: Table modified from IISS (1989:236–37).

the Indian Ocean, and the Admiral in charge of the Pacific (ALPACI) at Nouméa, Fort de France/Martinique in the Pacific Ocean (IISS, 1989:63).

The ALINDIEN is composed of five frigates, three minor combatants, two amphibious and four support ships plus a small naval marine detachment. It operates out of Djibouti within combat range of the Persian Gulf, using both the bases of La Réunion and Mayotte in the Mozambique Channel. The ALPACI also has a significant force of five frigates, five minor combatants, seven amphibious and 12 support ships. Apart from Nouméa, New Caledonia, ALPACI patrols via Tahiti, Moruroa, the Antilles and French Guiana (Harkavy, 1989:58). In 1989, the French Navy consisted of 65 500 troops, including 2600 Marines, 11 000 Naval Air and 19 200 conscripts (IISS, 1989:60).

France has 44 major surface combatants; two attack aircraft carriers (*Clemenceau* and *Foch*) one helicopter carrier (*Jeanne d'Arc*), 17 destroyers, one cruiser (*Colbert*) and 23 frigates. France also possesses 8 minesweepers, 18 minehunters and about 258 smaller patrol crafts and support/recovery ships (Moore, 1989:25). A new nuclear aircraft carrier, the *Charles de Gaulle*, was ordered in the mid-1980s to succeed the *Clemenceau* in 1998, and a sister ship (to succeed the *Foch*, scheduled originally for 2002) has been delayed another five-years (*International Defense Review*, 1989b:1117). The original intention was to have the commissioned *Richelieu* to replace the *Clemenceau* in 1996, and the second new aircraft carrier to be named *Charles de Gaulle* and to replace the *Foch* in 1999. Names and dates have since been changed (*Milavnews*, 1986a:9). Although the new aircraft carrier will be the second slowest in the world (after the Spanish *Principe d'Asturias*) it will be the only carrier, apart from USA's, to carry 35-40 planes in the range of about 20 tons each (Isnard, 1989p:548). The political implications of the *Charles de Gaulle* are significant. For instance, France, by ordering the aircraft carrier, dedicates itself to a continued powerful global military presence for at least 40 years into the next century (the expected life-span of an aircraft carrier is about 40 years). The planned development of a second aircraft carrier suggests further important military armament in the 2000s. At any given time, at least one French aircraft carrier is in the Mediterranean Sea, and one periodically deploys to the Atlantic or Indian Ocean (Arkin and Fieldhouse, 1985:59-60).

Two separate frigate generations are under development for the 1990s. The surveillance frigate programme, the Floréal class, is scheduled to be completed in four years, and intended for operations in low-risk areas (*Jane's Defence Weekly*, 1989h:398). Four of the six frigates have already been ordered for delivery in 1992 (*Jane's Defence Weekly*, 1990b:94). The second programme concerns another six light frigates, to be delivered from 1994. This La Fayette class will operate in areas like the Indian Ocean, and be capable of incorporation in a carrier task group (de Bakker, 1989:1417-418).

France has a number of very low frequency (VLF) and low frequency (LF) transmitters to assure communications with its SSBNs and SNAs, along with the surface combatants. LF facilities are located outside of France at Papeete (Tahiti), New Caledonia, Senegal and Martinique. The USA maintains VFL Omega at La Réunion. France has further high frequency (HF) surface fleet communications systems through its global Organisation des transmissions de la Marine (OMAR) and Organisation Mondiale Inter-armées des Transmissions (OMIT). French dependence on foreign facilities for Signals Intelligence (SIGINT) is unclear. No bases on location in France for this purpose are known, but it is likely that this capability is placed with ships operating out of ALINDIA and ALPACI ports. According to Harkavy, it is 'probable that France is availed of NATO or US-based data for SIGINT, targeting and so on, despite France's withdrawal from military cooperation with NATO.' (1989:215).

Although the array of ships in the French Navy is impressive, maintenance and equipment costs are very expensive. The export of the Exocet missile has greatly contributed to keep its unit-cost down, in turn making it possible to use the missile in several different versions for various kinds of ships. As with the other branches of the armed forces, the Navy's allocations will be further reduced in the future. However, there is one important difference from the Air Force and Army: the French nuclear deterrent rests on the nuclear missile-carrying submarines, and the French aspirations to be a global power rests with its capability to remain visible on, virtually, all seas at all times. As long as this continues to be the official French policy, the French Navy will not need to worry about its existence.

The Naval Air Force

The French Naval Air Force's only aircraft equipped with tactical nuclear weapons are 36 Super Etendards capable of carrying two AN-52 gravity bombs each. The aircrafts are stationed aboard the two aircraft carriers. The 31 remaining Super Etendards in the Navy are available on land (Fieldhouse and Taoka, 1989:89). Since 1988, the Super Etendards carry the new ASMP with a yield of 300 kt and a 250 km range (Fieldhouse and Taoka, 1989:131).

The Navy's obsolete 12 Vought F-8E Crusader fighter aircraft will be retired in 1993. For a time, there was a discussion whether to buy or lease US F/A-18 Hornets while waiting for the delivery of the 86 Rafale ACM fighters to be ready in 2002. After a period of trials with the F/A-18 Hornet, strongly favoured by the French Navy, because of its superior capacity to the Crusader, the Minister of Defence, Jean-Pierre Chevènement, instead decided on an upgrading. French procurement of 15 US F/A-18 Hornets would undermine market capabilities to sell the Rafale, defence officials maintain, and this would give the USA an edge over the Rafale manufacturer, Dassault, in the future (de Briganti, 1990b:4 and 21; *Defense & Economy World Report*, 1990:3). Several French experts both consider the $275 million (FFr 1.8 billion) allocated for the upgrading to be too little and the dead-line for the upgrading of 1993 to be much too soon, maintaining the support for the purchase of US F/A-18 Hornets (*Defense & Armaments Héraclès*, 1990d:8).

The French Naval Air Force will receive 16 of the 40 required second-generation Atlantique 2 maritime surveillance aircraft by the rate of three per year (Isnard, 1989g:1035). These aircraft will be used to support French SSBNs and have capability for ASW. The total of 42 aircraft will be stretched beyond the year 2002, due to the reduction in defence expenditure for the Navy and the manufacturer's, Dassault, closing and transfer of production of production sites (Salvy, Hewish and de Bakker, 1990:161 and 168). Two Transall C-160 ASTARTÉ command, control, communications and intelligence (C^3I) also back up the submarine fleet. Furthermore, there are two flotillas of Alizé aircraft and three squadrons of Lynx helicopters for ASW (IISS, 1989:61).

The submarine force

The primary strategic mission of the Navy is to maintain the seaborne leg of the nuclear triad, the SSBNs. France deploys 11 nuclear-powered and 14 conventionally powered submarines. The Force Océanique Stratégique (FOST) consists of five Redoutable class SSBNs: *Le Redoutable, Le Terrible, Le Foudroyant, L'Indomptable* and *Le Tonnant*, and one of the new l'Inflexible class SSBNs. Six submarines of the Triomphant class will be introduced into the FOST from 1994 to replace the Redoutable class.

France maintains four nuclear attack submarines (SNA) of the Rubis class, and one the new Améthyste class, delivered in 1988 (the first out of four to be delivered). The fourth Rubis class submarine, *l'Emeraude*, became operational in September of 1988. During the next decade, the first four ships of the Rubis class will be upgraded to Améthyste standard, and the French Navy will also launch a 4000 ton SNA-Nouvelle Génération (NG) programme (Turbé, 1989:33; and Sharpe, 1989:173). France also maintains four Agosta class (diesel), nine Daphné class (obsolete) and one Dauphine class research submarine (Preston, 1988:683). Because of the concentration on the nuclear-powered submarines, France lacks an adequate number of mine countervessels, as well as conventionally powered submarines.

The Air Force

It is the Air Force which deploys the 18 S3 IRBMs at the Plateau d'Albion. In terms of aircraft strength, the French Air Force maintained 413 Mirage and 122 Jaguar aircraft, as well as 92 helicopters for different purposes in 1989 (IISS, 1989:61). Delivery in 1989 of 33 Mirage fighters, consisting of 16 air-defence and 17 nuclear-strike aircraft, will help move France's Air Force towards its target of having 450 combat aircraft in active service. By early 1989, 240 units of the Mirage 2000 programme had been ordered in four models: 124 C-interceptor models, 93 N-model nuclear and Mirage 2000N non-nuclear strike aircraft and 22 Mirage 2000B conversion trainers. Total procurement is expected to be 333 aircraft: 221 Mirage 2000B/C and 112 Mirage 2000N/N. With the retirement of the obsolete Mirage V aircraft, 55 Mirage F1s will undergo conversion for strike use in CT-configuration, waiting for the Rafale to enter service in larger numbers The Mirage F1s will be modernized with tactical air navigation (TACAN) systems, and inertial guidance system beginning in June 1991 (*Jane's Defence Weekly*, 1989f:112).

France has long had very inefficient systems for aerial detection at low and very high altitude, based solely on ground radar. As a compensation for this, France ordered four Boeing E3 Sentry AWACS and six Hercules transport aircraft from the USA in 1987 (Isnard, 1988a:82). The AWACS were purchased in co-operation with the British, who also will share training and maintenance economy with France through pooling arrangements. The French AWACS are expected for delivery in 1990-91, and are of great importance for

France's surveillance system on France's Mediterranean front, and in its overseas *départements* and territories. These aircraft will also be invaluable for possible French military interventions in Africa, similar to the mission to block the Libyan intrusion into Chad (Rudney, 1987:34).

Outside of Africa, France has no permanently stationed combat aircraft, though helicopters and utility aircraft are deployed in Martinique, Guadeloupe, French Polynesia, La Réunion and the Mozambique Channel Islands (Harkavy, 1989:94).

The tactical air force

The Force Aérienne Tactique (FATAC) deploys 18 squadrons, and its prestrategic element consists of five squadrons: one with 30 Mirage IIIE with two AN-52 gravity bombs each, three with 45 Jaguar A with one nuclear AN-52 gravity bomb each, and one with 15 Mirage 2000N low-altitude non-nuclear penetration aircraft carrying the ASMP (Isnard, 1989i:1347 and IISS, 1989:62). All of them, totally, 150 Mirage IIIEs and 45 Jaguars are scheduled to be replaced with the Mirage 2000N/ASMP (Schwartzbrod and Gething, 1988:642-46). About 260 Mirage 2000s have been ordered (*Military Technology*, 1990:88).

In February of 1988, FATAC had 250 aircraft. The Chief of Staff of the Air Force, General Achille Lerche, reportedly stated that FATAC was the 'least well equipped of the comparable Allied air forces in Europe'. Some of the Mirage IIIE's have been in service since 1964. General Lerche said that an interim fighter was urgently needed before the Rafale is available for service (Isnard, 1988c:349). The year 1993 is the critical year for the French Air Force. Not only are many of the FATAC aircraft rapidly becoming obsolete, but this is also the case of the Navy's Vought F-8E Crusaders. The C-130 Hercules transport aircraft and the Franco-German C-160 Transalls are also becoming obsolete, and with the creation of the FAR, France needs improved transportation to be able to provide instant assistance, or intervention, over long distances. The IEPG is currently working on a programme for the Future Large Aircraft (FLA) in which Great Britain, Spain, France, the FRG and Italy would purchase between 300 and 400 units. The FLA is projected to enter service around the year 2000 (Cook and Sweetman, 1989:1155).

The Air Defence Forces Command, the Commandement Air des Forces de Défense Aérienne (CAFDA), possesses 13 squadrons: eight with Mirage F-1Cs (being replaced by Mirage 2000s), three with Mirage 2000C, one with Mirage F-1C/B and one with Mirage 2000 C/B (*Military Technology*, 1990:87; and IISS, 1989:61).

The strategic air force

The Forces Aériennes Stratégiques (FAS) possesses two squadrons with 30 Mirage IV, of which 18 Mirage IVP carry the ASMP missile. Another 45 units of the Mirage 2000N also carry the ASMP, and 12 Mirage IIIBs provide escort for the strategic bombers.

One wing of 11 KC-135 aerial refuelers (purchased from the USA in the 1960s) back up the FAS (IISS, 1989:59; and Arkin and Fieldhouse, 1985:53) together with two Transall C-160 ASTARTÉ airborne communications centres. France purchased four AWACS aircraft from the USA in 1987 which are scheduled for deployment in 1990.

The Rafale fighter aircraft

The most urgent programme for the French Air Force is the tactical, multi-mission aircraft to replace the Mirage IIIE and Jaguar of FATAC and the Mirage IV and 2000 of FAS in 1995-96. Currently under development, and already tested, is the new French-designed fighter aircraft, Rafale, manufactured by Dassault-Brequet. France was initially a part of the European Fighter Aircraft (EFA) consortium, but withdrew after the other partners refused to grant France a leadership role. There were also disputes over the size and mission of the aircraft, and the French aircraft industry would have gone bankrupt without new orders. Dassault, approached both Spain and the FRG about participation in the Rafale programme after France broke with the EFA consortium, but so far this effort has been unsuccessful. In view of the developments, France decided to take on the full costs of manufacturing its own aircraft, with the risk-taking this implies for the French aircraft industry. The Air Force is estimated to require 250 of the Avion de Combat Tactique (ACT) version (of which there exist three prototypes) and the Navy to require 86 of the Avion de Combat Marine (ACM) version (of which there exist two prototypes) (*Armées d'Aujourd'hui*, 1989:47). The cost of the development and production tooling of the ACT/ACM Rafale is estimated at $6.1 billion (FFr 40 billion), of which about one fourth is for fixed tooling-up costs. The price for one ACM is estimated at $36.3 million (FFr 238 million), and about $39.2 million (FFr 257 million) for one unit of the more expensive ACT version (Salvy, 1989:542).

The Rafale is likely to become one of the most expensive miscalculations France has ever made in defence procurement. Dassault must sell about 2000 aircraft to break even, which is an unlikely prospect. The programme is already two years behind schedule, and will face competition from the EFA, the US Agile Falcon F-16 upgrade, the McDonnell Douglas F/AIS Hornet, and, possibly, also the Swedish JAS-39 Gripen and the new Israeli fighter aircraft (Aubin and Rudney, 1989:72).

Without doubt, France's unilateralist defence policy has hindered French access to NATO markets, despite French participation in Allied fora. For example, in 1975, when the Mirage F1 contested the US F-16, no other NATO nation purchased the French plane. For political reasons, France did not participate in the NATO AWACS programme, which led to a significantly increased cost for France when it finally decided to buy four US AWACS planes in 1987. To withdraw from the Rafale programme now would be a significant blow to the French aerospace industry, but to continue means that money has to be taken from other military projects. As of 1990, France has not found any country willing to participate, but the EFA consortium would likely welcome France back into that programme. Strikingly, the one major weapon system for which Prime Minister Rocard has not called for any major revision or reduction, is the Rafale, expected to cost around $18.3 billion (FFr 120 billion) for only 336 aircraft, when planned for entry into service in 1996 (Davidson, 1989:2).

The Army

In 1989, the Army consisted of 292 500 troops including 6000 women and 183 000 conscripts (IISS, 1989:59). Also found in the French Army is the famous multi-national elite force, the Foreign Legion, with 8500 troops, and the Force d'Action Rapide (FAR) of 47 000 troops for rapid deployment both in and out of Europe. France also maintains a significant land-army presence within the FRG, with bases in Pfalz, Baden and Saarland. Some 50 000 forces are organized into three armoured divisions with 470 AMX-30 main battle tank (MBT), 150 155-mm SP and 180 anti-tank guided weapons (ATGW).

There is an additional 2700 men in West Berlin comprising one armoured and one infantry regiment (IISS, 1989:62). France also has a joint brigade with the FRG comprised of 4200 men, half of which are French, located in Böblingen, the FRG.

Equipment

The Army maintains all of the prestrategic Pluton SRBMs. According to IISS, France also maintains 1340 AMX 30 (475 B2), some 230 light AMX 13, 816 AMX 10O/PC/Milan, 1440 Milan mortars, 610 Gazelle, Puma and other helicopters and 14 light aircraft (1989-90:62). A new main battle tank, the AMX Leclerc, is under development and about 1000 units are ordered to replace the obsolete AMX 30. Upgrading of the AMX 30 into AMX 30B2s will end in 1991 (Isnard, 1989:48). The AMX Leclerc tank will replace the AMX-30 and AMX-30B2 and is supposed to equip the armoured divisions of the mechanized corps deployed in Central Europe. It will have a life-span of more than 30 years, can fire on the move with automatic reloading and has highly advanced technology and ergonometry (*Defense & Armaments Héraclès International*, 1989a:33). The Army Chief of Staff, General Gilbert Forray, said in September 1989 that the French Army fully subscribed to the US Army AirLand Battle Doctrine and AirLand Battle-Future concepts. The AMX Leclerc, the General stated, had the power to execute missions required of MBTs in the next century in accordance with the aforementioned concepts (Westerlund, 1990:42).

The Army has already fielded NATO's 155-mm self-propelled howitzer, the AMX-30 AUF-1 with automatic loading, and is waiting for the multi-national

227-mm multiple-launch rocket system (MLRS) and the PAH-2/HAP/HAC-3G Franco-German helicopter. The HAP version is expected for delivery to France in 1997, and is an escort and protection helicopter armed with 30-mm nose cannon, air-to-air missiles and unguided missiles for the French Army. The PAH-2/HAC-3G version is an identical second-generation anti-tank helicopter to be equipped with the European Missile Equipment Package (EUROMEP) the Trigat third generation armour-piercing missile in the late 1990s. More than 400 helicopters of these two versions will be required. The NH-90 joint European helicopter package is also in the development stage, with versions both for all three branches of the armed forces (*NATO's Sixteen Nations*, 1989b:89).

Chemical and biological weapons

The chemical industry in France started in 1914 with the manufacturing of grenades in Grenoble—a city which is still today a centre of military chemical research and civilian chemical industry (Fontanel, 1989:20). Although a signatory to the 1925 Geneva Protocol forbidding the use of toxic substances as weapons of war, France reserved 'the right to use them in retaliation' at the time of the ratification.

In 1985, the outgoing Chief of Staff of the Armed Forces, General Jeannou Lacaze, made a rare and rather outspoken statement about France's need to have a chemical weapons arsenal ready for use. He said that 'two cases need to be taken into consideration. In response to a massive chemical attack directed against our strategic forces, on the national territory, and putting our vital interests directly into question, the response would be nuclear, let there be no doubt about it...On the other hand, in response to a limited chemical attack directed against our forces in Europe, or outside of Europe, but not putting our vital interests into question, it appears desirable to have a certain retaliatory means in order not to confront the political leadership with the alternative of all or nothing' (Lacaze, 1985:18).

In early 1988, French representatives repeated the decision in France to begin the production of binary chemical weapons within the 1987-1991 Military Programming Law (Ravery, 1988a:3). This Law provides $129 million (FFr 900 million) for the development of 'modern chemical weapons (Zumach, 1989:1)

On 29 September 1988, President Mitterrand told the UN General Assembly that France would drop its demand for the right to store chemical weapons for 10 years and maintain a production facility, if all countries agreed to close their chemical weapons plants when the convention entered into force, and to open them to international inspection. The French plan was originally intended to protect countries without chemical weapons or with only small supplies, which would otherwise be left at the mercy of those with large stockpiles during the 10-year period. Mitterrand also declared French readiness to renounce any possibility of producing chemical weapons as soon as the convention entered into force (SIPRI, 1989:430). He said that France did not possess chemical weapons, but commentators thought this could imply that France already had acquired binary chemical weapons. Another explanation was that France had not filled its bulk of stockpiles of chemical weapons agents with munitions (SIPRI, 1989:105).

In 1985, France was estimated to have about 435 tons of chemical agent in its stockpiles, as the only other NATO country other than the USA to possess a significant quantity of these weapons (Turner, 1985:53). Today, France is supposedly equal to the USA and the Soviet Union in chemical defence. A permanent group for French chemical and biological weapons (CBW) questions has been established to work with the Joint Staffs of the Armed Forces to, most importantly, set guidelines and define the doctrine and the identification of new training, equipment design and manpower needs. The group meets twice a year to evaluate the latest changes in the world on these weapons and the level of threat, set priorities for French Armed Forces, co-ordinate CBW defence research, together with a proposed research programme for the coming year. The most important task of the group is to consider equipment design and development of new French doctrine and its evaluations of any changes in the level of threat. Recommendations from the group go to the Délégation Général pour l'Armament (DGA), which allocates finds and future programme budgets (Haase Ewin, 1989:57).

Quite astonishing is the fact that only a few weeks before the Paris Conference in January of 1989 with the purpose to prohibit the manufacturing of chemical weapons, the 'French Defence Industries' trilingual catalogue lists (in category 1365 under military chemical agents) four companies belonging to group 13 'munitions and fireworks' and (in category 1040) one company under 'chemical weapons and equipment' in group 10. This company was the Etienne Lacroix SA—a few years ago alleged to have exported weapons and ammunition to Iran (Ravery, 1988b:3).

At the Paris Conference, France declared its non-possession of chemical weapons. However, the question of binary weapons still remains, because these weapons can be produced at a short notice of the civilian chemical industry, and can not be identified as chemical weapons if the parts are stored separately. The Minister of Defence Jean-Pierre Chevènement, nevertheless, repeated at the Geneva talks on chemical weapons, in May of 1989, that France had no chemical arms (*Military Bulletin*, 1989:6). It is remarkable, however, that France has not removed its demand of necessary 'security stocks' of chemical weapons in the provisions of the Chemical Weapons Convention (CWC) (Kuntsevich, 1989:6).

In November of 1988, an official letter from the head of the chemical workers union in France to Jean-Pierre Chevènement requested details on the use of the $469 139 (FFr 2.84 million) for chemical weapons in the 1989 defence budget, France's demands for the afore-mentioned 'security stocks' and the purpose of the 350 000 142-mm shells allegedly ordered from a French company suspected of manufacturing chemical arms. Apparently, no response to this letter has come from the Defence Ministry (Eisenhammer, 1989:8).

The role of army and its light air arm

The future of the army is linked to the way in which the public or private industry manages its prices. High prices usually result in smaller or postponed orders, and the French Army is already accused of having the weakest conventional army in Western Europe. The credibility of France's commitment to NATO also depends on the effectiveness with which French airland forces can operate with their allies. The way to strengthen the European countries within NATO, thus, is for France to improve its conventional forces for deployment or battlefield-use in the FRG, and intervention forces which the Allies can consider seriously. An independent nuclear force isolates France, and reduces any possibilities for France to have any influence on NATO (Isnard, 1989:22).

In 1988, Chief of Staff of the Army General Forray speculated on the future French defence: confrontation will be greater than before in the air-ground domain. Both nuclear and chemical threats would persist, which is why France will have to equip itself with as safe and technically protected arms as possible, according to Forray. The depth of the battlefield would be multiplied with that of today, with day-and-night combat due to night vision equipment. Mobility and data processing would also increase. Compared to the French Army of 1988, the Army of 1991 (the end of the present five-year plan) represents a quality jump, Forray continues. The volume of the forces will practically be the same, but all the equipment will benefit from the results of technological progress. Among these, Forray said, would be price adjustments of the nuclear prestrategic force, transformation of first line and support weapons and improvement of command and intelligence. Finally, Forray said that reinforcement of ties and friendships, and the development of interoperability on the 'old continent' was the task which 'we dedicate ourselves' (1988:27-28).

The Army's light air arm, Aviation Légère de l'Armée de Terre (ALAT), has as its priority anti-tank missions, especially within Europe. In 1988, General Bertrand Le Poittevin de Lacroix de Vaubois said that ALAT will counter the growing threat of armed helicopters with an escort-helicopter squadron to enable other helicopters to perform their tasks (Turbé, 1988b:949). He also said that it could be necessary in the coming years to consider a special reserve of anti-helicopter helicopters, available to the commander of the FAR, or the 1st Army. The increased French willingness to participate in alliance planning and operations will also ensure that ALAT will remain strong, according to the General (Turbé, 1988b:949). The ALAT is comprised of 700 helicopters and several fixed-wing support aircraft, divided among the FAR at Nancy (three combat helicopter regiments, one airmobile support regiment and one 'command and manœuvre' helicopter regiment), one combat helicopter regiment in each of the three army corps and ALAT also maintains helicopters for the rear-area *Zone de Défense* and several overseas attachments.

The first of ALAT's 30 AS/332M Super Puma helicopters, ordered to serve within the FAR, were delivered this year. Out of these, 20 will be fitted with the Orchidée battlefield surveillance radar in the mid-1990s. The ALAT will also receive the HAP/HAC-3G helicopters in 1991 (Harding, 1989:455-56).

II.The reorganizations of the Army and Armed Forces

The reorganization of the Army between 1975 and 1979 had two main objectives. First, the differences in functions between the Forces de Manœuvre and Forces d'Intervention had to disappear, and second, the number of operational formations should be increased. The number of Military Regions were reduced to six (Keegan, 1983:194) and three army corps were set up with 15 divisions, making French forces capable of participation in the NATO concept of 'forward defence' (Berger, 1988a:39). Of these 15 divisions were 8 armoured, 4 infantry, 1 alpine, 1 parachute and 1 amphibious division. The smaller size of these divisions was expected to increase French mobility and firepower. The main portion of the forces were stationed in north and northwest France to bolster allied defence in those areas, in addition to 50 000 French troops (1st, 3rd and 5th Armoured Divisions) in the FRG and West Berlin (Kolodziej, 1982:202).

Four new divisions: the 4th, 6th, 7th and 10th Armoured, formed the 1st Army Corps, and with Headquarters at Nancy, Strasbourg, Besançon and Chalons, respectively. The 9th, 14th and 15th Infantry Divisions were deployed to St-Malo, Lyon and Limoges, respectively, the 27th Alpine Division was located in Grenoble, the 2nd, 8th Armoured and 12th Infantry Divisions were located in central and northern France and the 11th Parachute and 15th Infantry Divisions were deployed to south-western France (Keegan, 1983:195)

In 1981, the French Parti Socialiste (PS) won both the parliamentary election and the presidency. Although there were significant disagreements between parties in France, the left based a broad security design for France on the Gaullist model of an independent defence and strategic nuclear force, relative autonomy from NATO and reluctance to participate in a European conventional or tactical nuclear war. This perspective implies a different conventional army structure than that of the d'Estaing Government, whose 1977-82 Military Programming Law aimed at reinforcing the operational capacity of the Army for both European and out-of-Europe intervention.

Reforms in the early 1980s regrouped five divisions attached to the Forces de Manœuvre and created a backbone of eight armoured divisions with other branches of the Army, and a number of smaller and more mobile infantry divisions. This policy differs from the Gaullist design of the 1960s, mainly, in its emphasis on an important conventional capacity for prolonged battle, rather than the relatively minor role of testing an aggressor's intentions to attack

France, thereby, triggering France's strategic nuclear deterrent. In any case, d'Estaing's 1977-82 Military Programming Law reinforced the Gaullist trend to reduce the size of the Army, making it a more streamlined force, necessary for modern warfare. The reorganization of the Army resulted in a net decrease of 20 000 men by 1980, from a total of 330 000 men in 1976. All branches of the French Armed Forces had a total of 505 000 personnel in 1976 (Bourges, 1976:11).

The reorganization which took place in 1983, had four specific objectives. First, the FAR was created for rapid deployment operations, with five divisions subordinate to its own command, altogether 47 000 men. Second, the 3rd Army Corps was subordinate to the 1st Army Headquarters, which moved to Metz (previously, it was Strasbourg). The 1st Army Corps consisted of 33 000 full-time soldiers in two armoured divisions, and one infantry division consisting of reservists. The 2nd Army Corps consisted of 42 000 men in three armoured divisions in the FRG. The 3rd Army Corps, moved from the Paris region to Lille with the aim of improving its support of the NORTHAG, manned with 30 000 men in one armoured and one infantry division, and a light armoured division with reservists.

The reorientation of the Army toward the north and east of the country, and the *gendarmeries*' assignment to territorial defence has improved France's capability to free regular army divisions for combat in the FRG. This modernization was estimated to be paid for by a reduction of the total force by 35 000 men, with the Army's strength dropping by 22 000 (Rudney, 1984:90). Third, it was decided to deploy the future Hadès missiles into a single 'nuclear division', which relieved the 1st Army from its nuclear mission. Fourth, the eight so called 'Type 1977' armoured divisions were transformed into six larger 'Type 1984' armoured divisions, each about half the size of one half of a US armoured division (Ruiz Palmer, 1987:487-88).

The 'Armed Forces 2000'

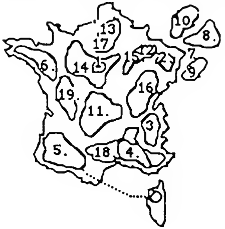
Because of the changing security environment in Europe, with the dramatic reductions of East-West tension, a decrease in available manpower and ever increasing R&D costs, the French Government plans to restructure its armed forces in a programme dubbed 'Armées 2000'. In the summer of 1989, Minister of Defence Jean-Pierre Chevènement reportedly stated that new technology and more effective weapons would compensate for downscaling of the Army's armoured and airmobile forces.

The future Army concept calls for further reductions in personnel and a complete reorganization of the three branches of the armed forces. The proposed cuts in the Army's manpower levels comes in the range of a 30 000 man reduction from 1978 and a 4000 man reduction in 1989. A 8000-9000 man reduction is already planned for 1990 (Kemp, 1989:857; and de Briganti, 1989c:12). Chevènement has mentioned three priorities which have determined the structural reform:

(a)the emphasis of the operational side;
(b)the simplification and coherence of the entire organisation; and
(c) the development of inter-service co-operation (Chevènement, quoted in Bonnart, 1989:21).

The main changes in the Army's structure result from the first objective: instead of the three army corps (Baden, the FRG; Lille, northern France and Metz, eastern France with the FAR in the Paris region) the Army will now comprise two army corps (Baden and Lille) and the FAR, under the authority of a Headquarters of the 1st Army, will be transferred from Strasbourg to Metz. Under this structure, the army corps in Baden will consist of the 1st Division (Trier, the FRG), 5th Division (Landau), 3rd Division (Fribourg) (all armoured) and the 15th Infantry Division at Limoges in central France. The army corps at Lille would be considerably strengthened with the 2nd Division (Versailles), 10th Division (Chalons-sur Marne), 7th Division (Besançon) (all armoured) and the 8th Infantry Division at Amiens. The FAR would remain unchanged with the 4th Airmobile Division (Nancy), 9th Marine Infantry Division (Nantes), 11th Parachute Division (Toulouse and Corsica), the 6th Light Armoured Division at Nimes and the 27th Alpine Division (Grenoble). Two light armoured training divisions will be located at Montpellier and Saumur (see Figure 8.1.).

Figure 8.1. Armées 2000 army deployment plan.



Division command posts

FAR divisions:
1. Maisons Lafitte
2. Nancy
3. Grenoble
4. Nimes
5. Toulouse
6. Nantes

1st Army Corps divisions:
7. Baden
8. Landau
9. Fribourg
10. Trier
11. Limoges
12. Metz

2nd Army Corps divisions:
13. Lille
14. Versailles
15. Chalons-sur-Marne
16. Besançon
17. Amiens

Light divisions:
18. Montpellier
19. Saumur

Source: Figure modified from Reed (1990:228).

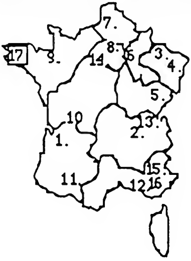
The 1st Army Corps has authority over two reinforced army corps with three armoured, and one infantry division, each, at its disposal. The 1st Army's command and underground Headquarters of FATAC will be moved to Metz, to facilitate a closer liaison. The Army and *gendarmerie* are to be regrouped in three larger defence zones, rather than the previous six smaller areas.

The Air Force will be grouped under three regional air headquarters, located at Villacoublay, Metz and Aix-en-Provence, instead of the four previous headquarters.

The Navy will have two commands, one at Brest for the Atlantic defence, and one at Toulon for the Mediterranean, instead of the previous three commands. Cherbourg will be responsible for protection of merchant marine in the English Channel. Paris will have an independent military governor, not subject to any of the three defence zones (Isnard, 1989m:240) (See Figure 8.2.).

The territorial organization will change, in that the number of military territorial divisions will be decreased from 22 to 10, with a territorial defence command in a joint structure. Finally, the three large defence zones, whose geographical area is identical for the Army, Navy and Air Force, will remain. The Mediterranean zone will deal with stabilization south of Europe and in Africa; the second zone along the French Atlantic Coast will concern the safety of French maritime transportation routes and the security of passage of the SSBNs at the Ile Longue; and the third zone in the north-east covers the operations in Central Europe (Schwartzbrod, 1989d:29; and Isnard, 1989n:23-25) (see Figure 8.2.).

Figure 8.2. Armées 2000 territorial organization of the armed forces.



Military regions:
1. Bordeaux
2. Lyon
3. Metz

Defence boundaries:
4. Strasbourg
5. Besançon
6. Chalons
7. Amiens
8. Paris
9. Rennes
10. Limoges
11. Toulouse
12. Marseille
13. Lyon

Aerial regions:
14. Villacoublay
15. Aix-en-Provence
3. Metz

Maritime regions:
16. Toulon
17. Brest

Source: Figure modified from Reed (1990:228).

What are some of the other implications of this planned reorganization? According to Jaques Isnard, one problem for the Army will be the question of man power—3500 men have been cut from the Army in 1989, and further reductions are expected (1989n:23). However, the new systems of Hadès, the MLRS, the Orchidée battlefield surveillance radar, the Franco-German Brigade and the AMX Leclerc tank will require 4000-6000 new men, according to Army sources. Furthermore, Isnard writes, there is a concern within FATAC that the creation of a large single command would threaten, particularly, FATAC's capability of carrying out the nuclear strike operations deep in the Central European theatre from the beginning of hostilities, without considerations of the 1st Army. Also, the cost of weapons production have raised concern from, among others, the DGA, of 'structural disarmament'. The costs, for example, of the Rafale fighter aircraft, the *Charles de Gaulle* aircraft carrier and the AMX Leclerc tank are already way above the original, very high, estimates (Isnard, 1989n:23-25).

The Rassemblement pour la République (RPR) is worried that 'the dissolution of the Metz corps might weaken French military posture, by not concentrating on operations along one Central Region axis', and does not favour the drop in training units left in 'Armées 2000'. The Communist Party complains that the reorganization will decrease French military independence from NATO, and the National Front leader, Jean-Marie Le Pen, wants a professional army and six months of compulsory basic military training (*NEWSBRIEF*, 1989:69-71).

French diplomats in Brussels reportedly say that cuts in relation to the proposed CFE talks will not affect the French independent nuclear deterrent, French security interests or compromise the French concept of a European defence. Some artillery, MBTs and combat aircraft could be sacrificed to save the Mirage IV nuclear bombers, according to these sources. Minister of Defence Chevènement has, however, pledged that France would bear its share of cuts resulting from the CFE (Lewis, 1990b:445).

The French rapid deployment force

The Force d'Action Rapide (FAR) consists of as much as 80 per cent professional soldiers, divided into a general staff, with its command and support elements, and five separate combat divisions; the 9th Marine Infantry Division, the 11th Parachute Division, the 27th Mountain division, the 4th Airmobile Division and the 6th Light Armoured Division. The FAR can deploy up to 20 000 infantry men and can conduct anti-tank warfare at ranges out to four km with 360 HOT anti-tank missiles. Among other weapons, the FAR possesses 72 towed 155-mm howitzers, 492 Milan launchers and 240 helicopters. Part of the FAR is stationed in southern France, and would be moved up north in the event of crisis in Central Europe.

The French Government had two objectives in mind in creating the FAR in 1983. First , France wanted to improve its ability intervene quickly and flexibly in the defence of the FRG. Second, France's ambitions to remain a global power would depend on its capacity to move larger intervention forces over long distances. The FAR increases France's ability to exhibit solidarity with its allies both in and out of Europe. The Mitterrand Administration also underscored the importance of the forward defence of the FRG in terms of conventional means. The decision to co-produce the PAH-2/HAP/HAC-3G helicopter is certainly a step towards the virtual commitment to the 'forward defence' concept.

Some military observers consider the French commitment to the FAR to represent a major shift in French conventional strategy. Before this, the French commitment to the FRG centred on three 1st Army divisions stationed just east of the Rhine. This deployment meant that France, at most, would contribute to the NATO 'second-echelon reserve', but would not engage in the forward battle on the Elbe. On the contrary, the FAR's mobility and anti-tank capabilities are now specifically designed for front-line combat. General Etienne Doussau, one of the FAR's commanders, has reportedly said that the new force could be aimed at the WTO second-echelon elements, and thereby correspond to the NATO plans for a conventional counterattack on the WTO lines of communication and reinforcement (Isnard, 1983a:11).

The Mitterrand Administration denies vehemently the charges that the deployment of the FAR changes French military doctrine. Minister of Defence Charles Hernu said that it is only creating more flexible deterrent options, but he openly admitted that any FAR operation in Europe would automatically come under SACEUR command, and would depend on NATO air-support and logistics (Isnard, 1983b:9).

In Europe, the FAR would have little problems in terms of transportation. For out-of-Europe transportation, the FAR's mobility is more complicated. Mobility varies, however, widely from unit to unit; the 11th Division is completely dependent on externally supplied transport for transportation primarily on roads, whereas the 4th, 6th and 9th Divisions have no problems. The 27th has relatively satisfactory means of transportation. For airlift transportation, the FAR relies on the Air Force's 48 Transalls (of 1967 vintage) with a range of 1850 km with 16 tons cargo, or 5500 km with 4.5 tons, 22 modern Transalls with 9000 km in-flight refueling and 16 tons cargo, and five DC-8s with 12 000 km carrying 39 tons. France plans to procure 25 light transport aircraft at a cost of $300 million (FFr 1.97 billion) with delivery 1987-91. One option has been two buy a dozen C-130 Hercules from the USA. In addition to air transportation problems for the FAR, the Navy has only two 20 year old landing ships, two vintage tank-landing ships from the 1960s and four new light transport ships. Three new Foudre class ships, capable of carrying a mechanized regiment have been planned. Now, only one of these ships will enter service in 1991 (delayed one year), and the other two have been postponed. Thus, France lacks heavy transportation for the deployment of FAR over long distances. This is an important reason for France to justify its maintenance of combat and support units in French overseas territories and in the countries with which France has defence agreements, especially in Africa (Turbé, 1987a:1023-1026). A programme run by the French Air Force's transport command (COTAM) is currently under way to improve the effectiveness in undertaking long-range deployment operations. COTAM's Chief of Staff for Operations, Colonel Francis Lenne said that only 50 per cent of the targets of deployment can be met at any one time, but according to the Deputy Commander, General Michel Adam, the key to effectiveness was tied to organization and policies of maintaining regular detachements overseas, rather than the equipment. In March 1990, France scrambled five Transall aircraft based in Africa to complete deployment in three-five days of troops and helicopters to La Réunion in light of the coup attempt in the Comoros islands (de Briganti, 1990c:7).

Only 90 of the FAR's 240 helicopters (all in the 4th Division) are armed with anti-tank missiles, which may not be effective enough regarding the increasing Soviet use of reactive armour on their tanks. Many French helicopters also lack night vision avionics, enemy radar detection devices, and heat reduction equipment to reduce the helicopters' infrared signatures (Yost, 1988:182). It is particularly the FARs airborne component which would be called upon to develop a high density air-to-air and surface-to-air aerial defence in an extremely hostile environment, characterized by a high incidence of ground and air fire, and a harsh environment of electronic warfare. The FAR has only limited organic fire support, and depends highly on air support of FATAC and Allied aviation. It is thus inconceivable to commit the FAR without granting it heavy air cover, as well as significant information systems and electronic countermeasures. From 1992, the FAR will have the HAP/HAC-3G helicopter, which will significantly improve the protective support against enemy helicopters and the WTO short-range surface-to-air defences. The helicopter will also have anti-tank capabilities. The NH-90 transport helicopter is also expected to equip the FAR in the 1990s (Lacaze, 1985:54).

The FAR was also supposed to receive 90 Panhard ERC vehicles and 2500 of the SANTAL low altitude surface-to-air self-propelled missiles, but this was cancelled in October 1989 due to the high costs. Mentioned alternatives are the manportable Mistrals or Mistral twin-packs on Peugeot JP4 or Panhard Vehicule Blindé Léger (VBL) vehicles (Isnard, 1989:688).

At the end of September 1987, paralleling the NATO exercise 'REFORGER' (Return of Forces to Germany) which brought 35 000 US reinforcements into the FRG for manœuvres with 43 000 NATO troops, the FAR took part with 22 000 troops in the exercise 'Bold Sparrow/Moineau Hardi' alongside 55 000 West German army troops. The French forces came under the operational control of a West German corps temporarily released from NATO command, but the French preserved the principle of refusing to permit French troops to come under a US or NATO command in peacetime. The exercise showed that the FAR was able to assemble and move long distances quite fast, but depended heavily on German logistics support. Although the FAR could be helpful in filling a gap early in the fighting, it is not as powerful as the French 2nd Army Corps (already stationed in the FRG) is against a full-scale armoured breakthrough (*The Economist*, 1987:49). This was the largest joint exercise ever organized and carried out by France and the FRG, and upon its conclusion, President Mitterrand and Chancellor Kohl announced that a joint defence council would be established. What was even more significant in this exercise was the participation (for the first time) of 200 French long-range patrol (LRP) behind-the-lines reconnaissance troops. Specifically, this first French participation in NATO's largest exercise involved LRP troops working with Belgian para-commandos, as enemy to the reinforcing US 3rd Army Corps in the NORTHAG exercise 'Certain Strike' (Furlong, 1987:1449).

One of the problems in the joint exercises was that the allied forces had to exchange equipment in order to receive messages, because the French and West German Armies' respective communications systems, the RITA and the AUTOKO respectively, are not compatible. Thus, communication is only possible through the transfer of equipment between the two forces. A few exceptions regarding difficulties with the interoperability were the HOT, Milan and various ammunition for some of the infantry weapons which were interchangable (Turbé, 1987b:458).

In 1980, the commander of the French forces in the FRG reportedly stated that the interoperability of his forces with the Bundeswehr and other NATO forces had improved and that, if the French Government so decided, his forces would be capable of conducting a counterattack under the operational control of CENTAG (Houdet, 1985:1). (In 1990, intercompatibility still seems to be a significant problem).

In 1982-83, the former Minister of Defence, Charles Hernu, reportedly made statements and proposals which implied that France might decouple the FAR, and even the 1st Army Corps, from the nuclear forces, including French battlefield weapons. By relieving these forces from their traditional mission of acting as trip-wire for nuclear escalation, they are now freed for more flexible use in the FRG. From a strategic standpoint, this move could also signal to the Soviet Union that French participation in combat with these forces is limited to conventional arms only, implying a unilateral no-first-use pledge on the part of France. The idea of a special command for the tactical nuclear forces, distinct from the 1st Army, was also advanced. Hernu said that one of the advantages of the Hadès missile, under development at the time, would be that it could be used 'beyond the zone of interest of the army corps and without a necessary link to their manoeuvres, if the President of the Republic so decides' (Yost, 1988:184).

9. The arms trade and industry

I. Introduction

For the past 20 years, France has been the third largest arms exporter in the world after the USA and the Soviet Union. After a number of profitable years, changes in world economics have forced France to seek new customers for its arms exports. One important reason is the fact that several new competitors have entered the world market: China, Brazil, Pakistan, Israel and South Africa, to mention a few.

With economic competition from the USA and Japan, the West European countries must consider new methods of manufacturing and marketing their products. For France, co-operation with other West European countries would automatically facilitate a greater European defence concept—something in which France is increasingly interested. The question is whether France will be able to keep its national arms industry independent of its allies, at the same time it has to co-operate with them on both research and development .

II. Government policy

French defence is formed around a doctrine of overall deterrence, requiring a self-sufficient, high-quality national defence industry. The arms industry is dominated by the state, which controls both the industrial and financial elements; a general statute actually forbids all export and foreign licensed production of weapons. Companies that wish to sell can apply for exemptions from the Délégation Générale pour Armament (DGA), which is subordinate to the Ministry of Defence. Approval is authorized by the Prime Minister upon the advice of a special committee, the International Committee for the Study of War Equipment Exports (CIEEMG) (SIPRI, 1989:325).

After Mitterrand came to power, several arms producers have been nationalized. The state accounts for about 40 per cent of the overall production and is the majority shareholder in, for example, Aérospatiale and Thomson-CSF and holds some stocks in Dassault-Brequet and Matra.

There are approximately 3500 arms manufacturing industries in France. The largest private and national corporations account for 60 per cent of the total armaments revenues. Aérospatiale holds a near monopoly on the production of helicopters and ballistic missiles, and Dassault manufactures most of the French fighter aircraft, for example the Mirage and the Rafale (*Defence*, 1989b:187).

Table 9.1. Export of major weapons to all countries in US$m, at constant 1985 prices.

Country	1984	1985	1986	1987	1988
France	3853	4046	4122	3073	2881
USA	10226	8506	9973	12225	9367
USSR	10118	12945	12905	15053	12768
UK	1908	1646	1805	1852	1586
FRG	2535	945	1106	717	1455
China	1254	1082	1313	2187	2011

Sources: Compiled from SIPRI (1989:199).

III. Geographical destination of exports

In the early 1970s, profits from arms exports contributed significantly towards reducing the French balance of payments deficit. Arms exports also helped to ensure an uninterrupted flow of oil at a time when the oil crisis was developing. Many of the country's best customers were the oil-rich states in the Middle East, and North African countries such as Algeria and Libya. Because of the oil crisis, the accompanying unemployment rate rose in France, as in most other West European countries. Arms manufacturing, which is very labour-intensive, provided the jobs that would have otherwise not been available. Arms production also helped to ease the growing budgetary restraints of maintaining, and eventually modernizing, the French nuclear deterrent and ensured the development of the necessary technological capacity. In the French view, the intensity of the efforts in exporting arms also contributed to French maintenance of its status as a global power. At the end of the 1970s, the country could also claim to be the third largest independent nuclear power in the world (Pickles, 1982:118).

The states of Africa represented an extremely important group of customers for French arms exports during the 1960s and 1970s. As part of France's attempt to achieve a global power status, it was important for France to attempt to strengthen the bonds with its former colonies, benefitting from the trade and the use of military bases. These new allies, which required strong national defences of their own to support their embryonic independence, became profitable markets for French arms exports. There was also French concern that the superpowers would step in very quickly if France did not establish links with these states.

The countries of Africa and the Middle East also had what France did not have: namely, important natural resources such as oil. Edward Kolodziej, who has thoroughly analyzed French arms trade, points out that the patterns of arms and military technology transfers to sub-Saharan Africa differs sharply from that with other regions. For example, France was one of the major weapons suppliers to the regime in South Africa until 1978, when d'Estaing reluctantly imposed an arms embargo. South Africa received two-thirds of the armoured vehicles and tanks, over 70 per cent of the Mirage III, F1 and other aircraft, about 40 per cent of all helicopters and both Daphne- and Agosta-class submarines from France (Kolodziej, 1987:367; Landgren, 1989:42 and 211). France complied with the voluntary UN weapons embargo of 1963 with the provision that it should only apply to weapons for anti-guerilla warfare. Thus, France could continue to sell arms to South Africa; and, indeed, France became one of its biggest arms suppliers in the 1960s (Landgren, 1989:42). Arms sales continued until the 1978 embargo and in the 1980s, France downgraded its relations with South Africa because of mounting protests from its francophone African allies. In 1985, France finally called for economic sanctions against South Africa in the UN Security Council, and withdrew its ambassador from Pretoria in 1986 (Landgren, 1989:212).

According to Kolodziej, other African states were a distant second to South Africa in imports of all major weapons categories, except logistical aircraft and smaller vessels. South Africa received more ground and armoured vehicles than all of the other African states put together and the former Belgian colonies, particularly Zaire, and non-francophone African states received more ground equipment than did francophone states (Kolodziej, 1987:368-69).

Beginning in 1982, France attempted to refocus its arms exports towards the industrialized countries, mainly in the form of development co-operation. France was interested in redirecting its arms sales for several reasons. First of all, with two-thirds of all arms sales to the Middle East, France had assumed a potentially very vulnerable position, being dependent on countries in an extremely unstable region. Second, the purchasing power of the Third World countries dropped with the collapse of the oil prices and an increasing debt-repayment crisis. Third, the Reagan Administration increased US military expenditures to sufficient levels to open up the US military market for sales (Heisbourg, 1985:39).

In the early 1980s, the French arms industry still targeted the Middle East/North Africa region to a considerable extent. (see table 9.2) Viewed in this light, it is evident that the French arms industry was very vulnerable to a reduction in orders from the Middle East/North Africa (Berger, 1988b:50).

The first sign of geographical reorientation of the French arms sales effort came from Matra, which was one of the first French companies to sell military equipment to the USA, with the sale of Durandal runway-denial bombs to the US Air Force in 1984. Thomson-CSF, which traditionally sold equipment to the Middle East, followed in 1985 with the sale of the Réseau Integré de Transmissions Automatique (RITA) communications system to the USA. According to *Le Monde*, two-thirds of French military contracts in 1987 were assigned to European or Anglo-Saxon customers (Schwartzbrod, 1988a:162-68).

When it comes to specific countries, France does not have the same policy as, for example, Sweden which forbids arms sales to countries at war. In the war

Table 9.2. French arms sales by region in per cent.

Region	1981	1982	1983	1984
Middle East/North Africa	71.6	65.9	56.0	76.6
Europe/North America	9.5	8.6	13.5	10.0

Source: Compiled from Berger (1988b:50).

Iran–Iraq, France competed with China, among others, to be a major supplier of arms, particularly to Iraq. Iraq's debt to France amounts to $3.8 billion (FFr 25 billion) just for the period of the war, of which half is for military goods. An agreement signed in September 1989 enables companies to receive guarantees for exports to Iraq. This would notably concern Dassault, which is trying to sell Mirage 2000s and Alpha Jets to Iraq (Isnard, 1989q:674). Exports to Saudi-Arabia have not been disturbed by the French–Iraqi relations. In June 1989, Saudi-Arabia and France signed an agreement worth $2.8 billion (FFr 18 billion) for French Mistral missiles and frigates. This immense sum represents almost half of the total value of France weapons exports in 1988 (*Svenska Dagbladet*, 1989a:4).

During the war Libya–Chad in the early 1980s, France imposed an embargo on Libya. This embargo was partially lifted in 1989, with the resumption of deliveries of defence equipment reflecting the French judgement that Libya is becoming more moderate in its relations with Chad (*Jane's Defence Weekly*, 1989e:20).

France also attempts to increase its long-standing contacts with Latin America. Chile, for example, has purchased torpedoes, anti-ship missiles and helicopters from France in 1988-89 (*International Defense Review*, 1989b:1255).

IV. The decline of the French arms industry

In 1985, French arms exports decreased to a total of $4.9 billion (FFr 44.5 billion) from the 1984 record figure of $7 billion (FFr 61.2 billion). That French companies are becoming less dependent on Third World orders for arms contracts was indicated by the fact that 42 per cent of the 1985 total came from European and North American customers, surpassing North Africa and the Middle East which together accounted for only 39 per cent, a much lower figure than in 1984 (*Milavnews*, 1986b:1). In 1986, French arms exports decreased to $3.7 billion (FFr 25.5 billion) in 1986 (*Milavnews*, 1987:10).

Military equipment orders reached a higher total in 1987, an 8 per cent increase over 1986 with orders worth $4.5 billion (FFr 27.3 billion) in 1987. Orders from Iraq, mostly of aircraft, served to increase French sales for 1987. There were also additional changes in the market: the share of North African and Middle Eastern countries changed from 66.0 per cent in 1979 to 39.0 per cent in 1987, while over the same period the European and North American shares went up from 11.2 to 41.0 per cent. That the oil-producing countries have lost their former purchasing power may be a better explanation, than a French desire to orient the market towards the developed world. According to the DGA, demand is turning towards more complex and expensive systems that call for co-development and burden-sharing. In addition, the market is becoming increasingly competitive with new countries joining the defence industry aside from the traditional arms manufacturers (Isnard, 1988d:82).

French arms exports increased by 12 per cent in real terms in 1987, reaching $4.8 billion (FFr 28.9 billion), according to the Ministry of Defence. The bulk of the new orders, 54 per cent, was aerospace equipment; army equipment accounted for 27 per cent and naval weapons for the remaining 19 per cent. West Europe and North America accounted for 41 per cent of orders received last year, displacing the North African/Middle Eastern region, with 27 per cent in 1987, from its traditional position as the largest customer of France's defence industry. The Far East accounted for 10 per cent, sub-Saharan Africa 7 per cent, Latin America 2 per cent and others, including East Europe, 1 per cent. Export deliveries dropped in real terms by 22.4 per cent, to $5.6 billion (FFr 34.1 billion). Aerospace accounted for 54 per cent of deliveries, the Army 37 per cent and the Navy 9 per cent. In terms of deliveries, North Africa and the Middle East maintained its top position, absorbing 54 per cent of the French exports, followed by North America and West Europe with 25 per cent, sub-Saharan Africa with 2 per cent, Latin America 6 per cent and others 1 per cent (de Briganti, 1987:16).

In 1988, the French arms export orders increased by nearly 30 per cent, over the 1987 figure, to total $6.2 billion (FFr 37.5 billion). Three large contracts were the main factors in this unexpected increase: (a) Jordan's purchase of 20 Mirage 2000s, (b) Saudi-Arabia's purchase of new helicopters and fast patrol boats, and (c) Finland's purchase of Crotale surface-to-air missiles (Isnard, 1989d:386).

Export orders for 1989 decreased to a 15-year low of $3.0 billion (FFr 20 billion) which is a 40 per cent drop compared to the year before. The official explanation was that the previously strong French markets in the Middle East have received new suppliers, such as Brazil (*Defense News*, 1990:26). Another reason is of course related to the East-West *détente* and the ongoing disarmament talks, particularly the CFE talks in Vienna on conventional weapons. In addition, most Western countries now possess a fairly high degree of modern arms which together with budgetary restraints and a concentration on social and educational funding draws money from the arms sector.

An exception to other companies in 1989 was Aérospatiale, which enjoyed record sales of $10.1 billion (FFr 66 billion), compared to its 1988 low of $6.4 billion (FFr 38.4 billion). Aérospatiale's success is explained by large orders from the civilian market (about 65 per cent of the turnover) (*Jane's Defence Weekly*, 1990d:171). The company's turnover in 1988, despite the low figure, places it at seventh place on the list of the top 100 defence companies in Europe

(Curtis, 1990:18). Aérospatiale will apparently continue its successful business into 1990, recently receiving a contract from the Swiss Army worth $153 million (FFr 1 billion), for 12 Super Puma helicopters (*Defense & Armament Héraclès*, 1990:9). Aérospatiale's Chairman, Henri Martre, however, said that the company would face two major difficulties in the future: the evolution of the US dollar exchange rate, and the rapprochement of Daimler-Benz and the Helicopter Division of Aérospatiale. According to Martre, the latter would not be easy but it could be accomplished through West German financing of the NH-90 helicopter programme, aside from the co-operation on the PAC-2/HAP/HAC-3G helicopter currently underway (*Jane's Defence Weekly*, 1990d:171).

V. The arms industry and the future

According to Defence Minister Jean-Pierre Chevènement in a study on arms purchases in 1987, the French military purchases 75 per cent of its equipment from the private sector, with nationalized industry supplying only 13 per cent of its requirements. In 1988, weapons production employed about four per cent of the French industry workforce—or approximately 300 000 workers. Military production contributed 67 per cent of the aerospace industry's turnover, 57 per cent of the electronics industry, and 50 per cent of the expenditure of the Atomic Energy Commission (*Jane's Defence Weekly*, 1988c:1018; and Isnard, 1989e:55).

The overall French defence budget for 1988 was $29.2 billion (FFr 176.6 billion) with $15.0 billion (FFr 90.8 billion) for R&D of which about 30 per cent was devoted to the nuclear forces, which left only about 17 per cent for the conventional forces (Berger, 1988b:50).

Unfortunately for France the domestic arms market is insufficient to sustain its arms industry. For example, the French Air Force only deploys 450 aircraft—to be reduced to 350—while the Army deploys just 1100 AMX-30 main battle tanks (MBT). By 1987, 160 Mirage 2000s had been ordered by foreign customers, compared to only 100 by the French Air Force. The French have come to rely on foreign sales not just to reduce unit costs, but to show a profit. Between 1977 and 1984, foreign sales consumed 40 per cent of French production, with the figure for aeronautics industry reaching 70 per cent. The main handicap in the defence industry seems to be the lack of public funding, especially for R&D (Berger, 1988b:50).

The French defence industry is facing difficult times, especially since the defence budget will be cut by $6.1–6.9 billion (FFr 40-45 billion) which will result in a slow-down of most procurement orders. The French defence industry is in a relatively weak position over its exports, if one takes into account the fact that 89 per cent of its traditional customers are Third World or developing countries. In France, 20 companies share about 90 per cent of the entire sector (Guérin, 1989:5).

Business mergers and belt-tightening

The present economic conditions are forcing France to move from the concept of a purely national industry to engage in co-operation with other countries in the development of weapons systems (see chapter 4). The prevailing economic climate is also forcing French defence industries to engage in another form of co-operation—mergers and acquisitions—to remain strong on the world market. This is the case for most of the private defence industries in European countries, and both private and national defence companies in France.

In the past two years, British Aerospace has purchased Royal Ordnance and Rover, creating a giant technological equivalent to a French group that would encompass Aérospatiale, Citroen and a part of Groupment Industriel des Armaments Terrestres (GIAT). During the same period of time, the other giant, the West German corporation Daimler-Benz, became the first European defence group to absorb 50.8 per cent of the military spending and 61 per cent of public research funds provided for in the country. The West German corporation purchased Allgemeine Elektricitäts-Gesellschaft (AEG), Motoren- und Turbinen-Union (MTU) and Dornier, and is now merging with parts of Messerschmidt-Bolkov-Blohm (MBB), creating Deutsche Aerospace (DASA). This company will be the second largest group in Europe after British Aerospace.

The trends in mergers and acquisitions are the same in other European countries. Multi-national consortia have grown in response to an increasingly competitive market in which the US arms industry has revived and the threat of Japan has developed, together with other new defence industrial powers.

For French companies, there is little alternative than to concentrate efforts on similar business deals, because of increasing costs of R&D, and competition both inside and outside of European. Thomson Avionics and Selenia have created the world's fourth largest aviation group through a recent merger within the concept of the Eurosam programme.

In the summer of 1989, subsidiaries of Aérospatiale and Thomson-CSF merged to create a new company called Sextant Avionique (*Jane's Defence Weekly*, 1989g:227). Aérospatiale and MBB has also agreed to merge their helicopter divisions which would make this consortium, dubbed Eurocopter S.A., the second largest in the world after the US Sikorsky. Italy and Great Britain may also participate in this venture in the future (*Defense News*, 1990b:56). Aérospatiale is also interested in a joint venture on missiles with its fiercest French competitor Matra (Isnard, 1990c:458). This consortium may be seen as a response to the merge between Thomson-CSF and British Aerospace, establishing the largest missile company in Europe, Eurodynamics (*Jane's Defence Weekly*, 1990a:92; Polsky and Witt, 1989:3).

Thomson-CSF was recently placed as the second largest defence company in Europe in 1988, surpassed only by British Aerospace (Curtis, 1990:18) and was number one among 100 defence electronics companies in terms of sales in Europe the same year (Bedford, 1990:398). Thomson-CSF also recently increased its strength by purchasing an 80 per cent share in Hollandse Signaalapparaten, a 49 per cent share in Manufacture Belge de Lampes et de matérial éléctronique (MBLE) of Belgium, and a 99 per cent share of Télécommunications Radioéléctrique et Téléphonique (TRT) (*Jane's Defence Weekly*, 1990c:169).

Matra, which is privately owned, is trying to solve its problems in the market by cross-ownership with other high-technology defence manufacturers. Matra , for example, will exchange 5 per cent of its shares with Great Britain's General Electric Company (GEC), Marconi and DASA (de Briganti, 1989f:60). Matra also purchased 20 per cent of the West German Bodenseewerk Geratetechnik (BGT) of the Diehl corporation (*Jane's Defence Weekly*, 1989l:1196). On the US market, Matra has a teaming agreement with McDonnel Douglas, and has recently purchased Fairchild Space and Defence to further improve its presence in the USA. Noel Foregeard, the President of Matra Defence and Space, reportedly regards the USA as the single most important market within NATO (*NATO's Sixteen Nations*, 1989c:42-48).

Another way to cut down on expenses to defend its place on the market is, of course, lay-offs, an issue that is extremely sensitive to the public in France. Much to the dismay of the trade unions, Dassault-Brequet announced that it would close down a plant near Toulouse by 1990 affecting 1400 workers but possibly offering around 700 of them jobs at other plants. This facility manufactured components for the Alpha Jet trainer, the Falcon transport and Atlantique 2 maritime surveillance aircraft (*Jane's NATO & Europe Today*, 1989b:5).

GIAT, the army equipment production firm that was put under the management of the Ministry of Defence, is to be restructured, according to Minister of Defence Jean-Pierre Chevènement. In 1989, the company suffered its fourth consecutive year of losses. Critics in the trade union of the 14 600-strong work force are calling it a 'disguised privatization' which would result in the closing of numerous plants and the loss of thousands of jobs—8000 jobs as a result of the 1990 budget and 4050 for GIAT alone by 1991. Chevènement has declared that no closures would take place, and that there would only be 1200 'surplus' jobs by 1992. GIAT has had severe problems in the mid-1980s, in an increasingly competitive market. Furthermore, GIAT even almost missed out on an order to supply the French *gendarmerie* with new pistols in 1989. A report by the Court of Accounts indicated that the firm had declined from 25 000 employees in 1977 to 14 600 in 1989 (*Jane's NATO & Europe Today*, 1989e:3). Because of declining government orders, GIAT has an increasing problem in maintaining its original prices. The price for the AMX Leclerc tank had an increase by 26 per cent, and the 155-mm howitzer by 40 per cent in the fall of 1989 (*Jane's Defence Weekly*, 1989k:1196-197). It also was decide in the spring of 1990 that GIAT would become a separate state-owned industrial firm without private investment (a legal status similar to Aérospatiale's) to help to improve the company's competitiveness (Beaver, 1990:720).

The other state-owned company, Société Nationale d'Etude et de Construction de Moteurs d'Aviation (SNECMA) is undergoing a process of restructuring as well. In this case, the company is authorized to transform $351 million (FFr 2.3 billion) of its capital of existing state loans into equity capital. SNECMA manufactures the engines for Mirage and Rafale aircrafts, and has attained favourable results in 1989, because of increased orders of engines by the civilian aviation (*Jane's Defence Weekly*, 1989i:741).

French arms manufacturing in the European Community

The weapons procurement sector is still excluded from the prospective post-1992 single European market. With the final implementation of the SEA, however, the economic market will be very homogenous and will inevitably affect those companies which manufacture both civil and military goods. The Independent European Programme Group (IEPG) is considering agreements which would facilitate the trade for the defence industries in the member countries and streamline their efforts to co-operate and to merge, for example through the harmonization of programme codes and the organizing of a common fund for upstream co-operation on military R&D. In October 1989, Brigadier General M. Thevenin reportedly stated that arms co-operation has never before been so important for France and remained 'the best way to achieve cost effective modernization of [its] conventional forces. With a favourable environment and government support, our defence industries can play a crucial role in shaping a new and more viable pattern for future US-allied defence co-operation.' (Thevenin, 1989:26).

In the fall of 1989, Yves Sillard, the Director of DGA, reportedly said that a reinforcement of European arms industry would not be aimed at US industrial interests. Rather, it would create more favourable conditions for joint programmes between the USA and Europe. Furthermore, Sillard did not think that the talk of a common market for defence products with new 'customs tariffs on defence equipment by the European Commision, and of EUCLID, would hamper access to [the European] defence market by US industry'. On the question of whether the current talks on disarmament in Europe would affect Europe's defence industry, or not, Sillard said that apart from, perhaps the helicopter industry, the disarmament process would bring no radical change (de Briganti, 1989g:94). An anonymous analyst of French arms industry, quoted in *Jane's Defence Weekly*, however, reportedly stated that France may face some difficulties in the future. France 'is still seeking a three per cent increase in real terms in its defence budget, in spite of the fact that defence exports fell by 20 per cent [in 1989]' (Bedford, 1990:399). According to the Bedford, there will be a 'considerable reshuffle among [France's] defence companies' unless France changes its policy on procurement (1990:399).

Yves Sillard was still confident in the spring of 1990 that France would not have to alter its defence procurement programme radically because of the events in Eastern Europe. Commercial pressures, however, was already high on the European defence market, he said. Several joint programmes were under way, among which Sillard considered the NH-90 to be the most important naval and army aviation equipment programme. Sillard maintained that although the European countries increased their co-operation and mergers between companies, this was not aimed at the USA, but stated that he was 'concerned about the US tendency to always isolate itself and the fact that US political reaction continues against outside influences. This could be bad for US/Europe co-operation' (Beaver, 1990:720).

VI. Conclusion.

France had to re-direct its sales from the Middle East and Third World countries to western Europe and the industrialized world in the early 1980s. The dependence on the traditional markets made France vulnerable to changes in the political climate in the Third World, and new competitors challenged French arms exports. At the same time, the Reagan Administration's pro-armament policies opened the US market for European products. However, because of a decrease in procurement orders and increased R&D costs, French arms exports hit a 15-year low record in 1989. The French arms industry depends on foreign markets to show any profits. Because of the increased competition between traditional and new arms exporting countries, particularly countries such as Israel, China, Brazil, Argentina, Pakistan and South Africa, many of the largest European defence companies in Europe have started to co-operate. Co-operation is also taking place in light of the expected increase in competition in the post-1992 single European market. Decreased national military budgets also provides an argument for defence contractors to seek foreign allies instead of relying on orders from their national governments. French giants on the defence market, such as Aérospatiale, Thomson-CSF and Matra, have through mergers, cross-ownership and acquisitions of foreign companies prepared themselves to meet the post-1992 competition. A French government which favours a continued policy of military independence can no longer rest assured that desired equipment can be manufactured by entirely national French defence companies.

10. Budgets and procurement: a brief review

I. Introduction

By tradition, the French President, not the Prime Minister or the Parliament has the final word concerning defence and security matters. The defence institution —in other words, its mission, organization and the financial resources which determine what equipment is procured—is at the intersection of these two 'reserved' areas and thus, is answerable to the President, who is also the Commander-in-Chief (Isnard, 1989k:40).

II. The 1977–82 military programming law

In 1976, when the French Parliament voted on the new Law, the French Minister of Defence defended it, primarily on the grounds, that it was important for the continent that the French forces were not inferior to those of the FRG (Pickles, 1982:107).

Military spending was 3.86 per cent of GDP in 1981, and more than 54 per cent of the military spending was allocated to the conventional forces (Kolodziej, 1982:193).

The original intention of the plan was that the 1983 total defence spending would rise to 20 per cent of the overall fiscal budget, from 17 per cent in 1977, thereby reversing the general decline in defence expenditures from the late 1960s. In reality, the government actually increased military spending faster than this rate. The 1980 defence budget of $21 billion (FFr 88.6 billion) was $308 million (FFr 1.3 billion) higher than what had been expected in 1976. This represented an increase of 14.9 per cent over the 1979 defence budget, whereas the national budget increased by only 14.4 per cent. The 1981 defence budget was projected at $19.2 billion (FFr 104.4 billion,) which was an increase of 17.9 per cent over 1980, whereas the national budget rose by only 14.8 per cent (Harrison, 1981:199).

In constant francs, the Forces Nucléaires Stratégiques (FNS) budget was actually reduced slightly from 1969 to 1979 because of, among other factors, increased maintenance costs. This occurred despite the planned increase for the nuclear forces. The spending for conventional forces, favoured by d'Estaing, rose by 20.3 per cent in 1978 over 1977, while the allocations for the nuclear forces rose only 16.6 per cent, which confirmed that the 'general orientation of the original programme was being fulfilled' (Harrison, 1981:199).

Table 10.1. Military expenditure as percentage of GDP.

Country	1979	1981	1983	1985	1987	1989
France	3.9	4.1	4.1	4.0	4.0	3.7
USA	5.0	5.7	6.5	6.6	6.4	
UK	4.4	4.7	5.1	5.1	4.6	
FRG	3.3	3.4	3.4	3.2	3.1	
Sweden	3.1	3.0	2.8	2.6	2.6	

Sources: SIPRI (1990:196–97); and SIRPA (1989:3).

III. The 1984–88 military programming law

The budget increase for this Law was estimated at 2 per cent per annum, with the objective of surpassing the level of 4 per cent of GDP by 1988 (Rudney, 1984:88).

The projected budget of $109 billion (FFr 830 billion) provided for a significant enhancement of the sea-based strategic deterrent: the deployment of the M4 MIRVed SLBM, the development of the Inflexible class SSBN and the upgrading of 4 of the other 5 SSBNs with the M4; ordering a 7th SSBN for delivery in 1994; and introducing the ASMP and modifying the Mirage IVPs, Mirage 2000s and Super Etendards to carry it. By 1988, France was supposed to have 211 naval aircraft, and 96 surface ships, a goal which was met (IISS, 1987:61–62).

Other projected programmes were the development of the SX mobile IRBM for deployment in 1996, the hardening of the strategic communications network, the deployment of the Avion Station Relais de Transmissions Éxceptionelles (ASTARTÉ) by 1988, and the replacement of the Pluton SRBMs with the Hadès missile by 1992. The Law also set out for the Air Force an objective of maintaining a front line strength of some 450 aircraft, with an order of 165 Mirage 2000 jets over the five-year period (George and Marcus, 1984:50). This objective was also met in 1988 (IISS, 1988:64–65). The Law noted that relations of confidence in Europe can not be established while one side [the Soviet Union] 'accumulates chemical weapons' (Yost, 1984b:8). It also clearly reflected the economic constraints on defence spending, with reductions in the conventional forces in order to strengthen the strategic nuclear deterrent. It was the French Army which was the main target of the reductions, despite the recent creation of the FAR. A personnel reduction programme proposed reduction of 50 000 troops, including 5000 from the French troops in the FRG.

In reality, the first Socialist five-year plan did little more than implement many of the procurement decisions taken under the d'Estaing Administration and confirmed France's slow shift toward reliance on nuclear trigger forces as its main element of defence. Mitterrand wanted to retain a credible modernized strategic nuclear triad more active French participation in the defence of

Western Europe and global military presence and space research, all in accordance with d'Estaing's objectives (Howorth, 1986:77).

The Law's guidelines stipulated that 30 per cent of the planned outlays be allocated to the strategic and prestrategic nuclear forces, as opposed to about 18 per cent during d'Estaing's presidency (Grant, 1985:415). However, some of d'Estaing's programmes soon had to be eliminated. For example, Minister of Defence Charles Hernu cancelled the d'Estaing plan to replace the fixed-silos at the Albion Plateau with the new mobile SX missile, mainly due to budgetary restrictions (Howorth, 1986:77; Hartley and Siefken, 1983:1–5).

This Law implicitly clarified French intentions to move closer to NATO and to acknowledge the importance of French participation in the forward defence of the FRG. The Hadès missile would solve the shorter-range Pluton dilemma (not striking FRG territory when fired from France), the ASMP would facilitate French attacks on East European targets and the creation of the FAR would enable French forces to fight alongside NATO forces in Europe.

IV. The 1987–91 military programming law

The 1987–91 Law initially allocated $68.1 billion (FFr 474 billion) to the armed forces. Overall, it contained probably more rhetoric than substance, being highly ambitious and more expensive than any French government could have managed. However, none of the military programming laws dating from the first law introduced some 25 years ago have been entirely implemented (Isnard, 1987a:90).

The Law was approved by all parties but the Communists, thanks in part to the co-habitation of Socialists and Gaullists in both the Parliament and the Cabinet. Equipment expenditures were planned to increase annually by six per cent in real terms and to carry defence expenditures to nearly four per cent of the GDP. Priority was set for the continued re-equipping of the SSBNs with the M4 and the planned M5 missiles to be delivered in 1994 (Housego, 1987:5, and *Milavnews*, 1986d:9).

The development of the S3 IRBM successor—the S4—was still under way in early 1988 with an estimated cost of $5 billion (FFr 30 billion). There was no decision on whether or not to produce a fixed or mobile system, the latter favoured by Prime Minister Jaques Chirac. Mitterrand criticized the plans for a mobile version as deviating from the classical doctrine of 'massive retaliation' to any aggression against French territory. He also expected public dislike of having mobile nuclear weapons (Rudney, 1988b:32). The S4 was expected for delivery in 1996 (*Milavnews*, 1986d:9).

The life expectancy of the 30 Mirage IV bombers was to be stretched to 1996, which, in fact, weakened the strategic nuclear forces by shifting to greater reliance on the SSBNs. During the first year of the Law, the ASMP instalments for the Mirage IV, Mirage 2000N, and the Super Etendard began. In 1987, the Mirage 2000 $3.7 billion (FFr 22.5 billion) and the Rafale ACT fighter aircraft

($904 million—FFr 5.5 billion—for development) programmes alone would absorb 78 per cent of the total equipment credits for the Air Force. $1.6 billion (FFr 9.7 billion) was allocated for the upgrading of the AMX 30 main battle tank (MBT) and development of the new AMX Leclerc MBT version.

The design of *le Triomphant*, the SSBN for 1994, was the greatest outlay for the Navy, absorbing $3.4 billion (FFr 20.6 billion): $2.2 billion (FFr 13.6 billion) was allocated for the M4 missile, $1 billion (FFr 6.4 billion) for the development of the S4 missile and $1.3 billion (FFr 7.7 billion) for the Hadès missile. The space budget was set at $1.5 billion (FFr 9.2 billion) (or 2 per cent of the total equipment budget), which, according to Jaques Isnard, was about the equivalent of what the USA would spend on its SDI programme (1987a:91).

The Law planned for an increase spending from 3.79 per cent of GDP in 1987, to 3.99 per cent of GDP by 1991. However, problems with economic growth, budget deficits and increasingly higher weapon development costs threaten to force revisions in the entire French defence. Projects already under pressure from cost overruns were the Rafale fighter aircraft and the AMX Leclerc MBT.

In mid-1988, Minister of Defence Jean-Pierre Chevènement stated that the new Hadès missile and the aircraft carrier *Charles de Gaulle*, were too close to completion to be abandoned. However, Chevènement's opponent, Minister of Finance Pierre Bérégovoy, has proposed a 0.5 per cent increase for 1990, and 1 per cent increase for 1991, 1992 and 1993. Almost inevitably, this would force Chevènement to cancel additional programmes (Kemp, 1989:857).

In June 1987, Jaques Isnard outlined a new innovation in terms of the economics of the implementation of the Programming Law (1987a:90). For example, government forecasts of military credits were expressed in constant francs, instead of current francs. This technically enables the Government to guarantee sustained purchasing power, regardless of the evolution of economic indices. On the other hand, the Minister of Finance does not have to honour the Law as it was written for the full five years. The government can also adjust military expenditures each year according to the international situation and according to the progress of the developments of the new projects. Deferral of the Law was also instituted, providing for the revision of expenditure scheduled prior to 1991 for commitment in 1992 and 1993 (Isnard, 1987a:90).

Another unusual feature of the 1987 defence budget was that, for the first time in 20 years, operating costs would be lower than equipment appropriations, the latter comprising $14.2 billion (FFr 86.2 billion) compared with only $10.9 billion (FFr 75.7 billion) in 1986. Overall, this represented a 14 per cent increase, or a substantial (in real terms) 12 per cent. However, Paris regarded this level as the absolute minimum necessary to fulfil existing procurement programmes, not including future equipment plans (*Milavnews*, 1986c:9–10).

France's theatre nuclear weapons are being simultaneously developed with nuclear and conventional capabilities. Fiscal year 1988 included the implementation of the helicopter-carried Orchidée battlefield surveillance radar system which is to become the main component of France's real time behind-the-lines battlefield intelligence. The largest increase in allocations went to the Helios military space telecommunications and the SYRACUSE strategic satellite observation programme. Expenditures on strategic nuclear weapon systems represented 78 per cent of the budget assigned to French nuclear forces in 1988, mainly to be used for the equipment upgrading of the SSBNs and the Mirage IVP, and the continued development of *le Triomphant*.

During 1988, the Air Force had 16 Mirage 2000N equipped with ASMPs delivered, with eight more on order. 33 of the Mirage 2000 version were delivered, with an additional order of 35 aircraft. The Army had 75 tanks of the upgraded AMX 30B2 MBT version delivered, with further orders of another 75 units. The Navy expected to receive the ASMP for deployment on its Super Etendards, and ordered another six Atlantique 2 surveillance aircraft, apart from the five ordered in 1987. The Navy also received the first Améthyste class submarine, and one frigate (Schwartzbrod, 1988a:162–68).

The 1989 defence budget

The 1989 budget proposal amounted to $27.8 billion (FFr 182.36 billion)—an increase of 4.6 per cent over the 1988 figure. The figure is roughly 3.7 per cent of the French GDP, which is slightly less than what was planned and far from the 4.5 per cent necessary to meet the objectives of the 1987–91 Law (Schwartzbrod, 1988c:30). In spite of some cost overruns, the French Administration is going ahead with the majority of programmes listed in the 1987–91 Law, except for the S4 strategic missile, which no longer carries the same priority due to the performance achieved, or expected, according to Minister of Defence Chevènement. Most of the conventional projects will be delayed or reduced in the plans for the coming year.

The Navy's *Charles de Gaulle* aircraft carrier (which in 1988 was estimated to cost about $2.3 billion—[FFr 13.9 billion]) will be delayed from 1996 to 1998, and its component of Atlantique 2 surveillance aircraft will be reduced from five to three per year (Isnard, 1989g:1035).

Le Triomphant was still expected to enter service in 1994, but it may be delayed. The enormous investment in the *Charles de Gaulle* and nuclear submarines have had serious effects on the rest of the Navy. In 1975, the surface fleet had 185 ships. In 1988 it was down to only 145, with projections of a further reduction to 120 ships by 1992 (Rudney, 1988a:30). The Minister of Defence acknowledged some delays in the development of the surveillance frigate programme by one year (four of the six frigates are expected to be delivered in 1992 (*Jane's Defence Weekly*, 1990b:94) and in the production of the 5th, 6th, and the 7th Améthyste class nuclear attack submarines (SNA) by 18 months (Isnard, 1989g:1035). The procurement of the Atlantique 2 surveillance aircraft suffered a delay primarily because the Navy has joined the

Avion de Combat Marine/Avion de Combat Tactique (ACT/ACM) common transport/maritime patrol aircraft development programme (Schwartzbrod, 1989c:36).

Neither the Hadès missile, the Franco-German PAH-2/HAP/HAC-3G helicopter programme or the replacement for the Puma helicopter, the multinational NH-90, will be put on the waiting list, unless there is disagreement between the partners (Isnard, 1989l:48).

The Orchidée surveillance radar will be delayed by one year, and the Mirage 2000 will be reduced from 33 to 28 aircraft per year for the time being (Isnard, 1989g:1035).

In the Law, France has planned to purchase 220 units of the Franco-German HAP/HAC-3G helicopters. Upgrades of the AMX-30 MBT into AMX-30B2 MBT will be cancelled in 1991, and the 155-mm howitzer programme will be slowed in favour of the Euro-American Multiple-Launch Rocket System (MLRS) (Schwartzbrod, 1989c:36).

The Rafale is expected to enter service in December 1996, instead of in early 1996, with an order of 250 units according to the original Law (de Briganti, 1989b:28). The French budget cuts in 1989 have also forced reductions in the number of Mirage 2000N aircraft from the five squadrons previously envisaged to three, or from 75 to 45 aircraft. The move is related to the policy of keeping what France describes as 'prestrategic weapons' to a bare minimum (*Jane's Defence Weekly*, 1989d:1209). The naval version of the Rafale fighter aircraft will not enter service until 2002, because of the delays of the *Charles de Gaulle* (Isnard, 1989g:1035).

Concerning strategic systems, Chevènement said that the new M5 SLBM would not be operational before the next century, at about the same time as the French land-based nuclear deterrent, the S3 IRBM, has to be replaced (*Jane's Defence Weekly*, 1989d:1209).

The SYRACUSE and Helios programmes were not affected by cost cutting in the summer of 1989, almost the only exceptions for conventional systems (Isnard, 1989l:48). President Mitterrand decided to spare the space programmes from cuts, a move partly motivated by his desire to defend France's international position as a global power and partly because the cancelling of major military contracts would result in increased unemployment in the defence sector, in 1989 around 2.5 million people (Redman, 1989:26).

A programme which, together with the Rafale fighter aircraft and the *Charles de Gaulle*, has been a source of miscalculations is the AMX Leclerc MBT, with the 1989 proposal maintaining the funding of 16 units (Schwartzbrod, 1989c:36). The total number of ordered AMX Leclerc MBTs (the first deliveries of the production model originally planned to start in 1992) will be reduced from 1400 to 1050 units (Schwartzbrod, 1989c:36).

In early 1988, the original 1400-unit AMX Leclerc MBT programme was estimated at $7.4 billion (FFr 45 billion), and developed solely by the French Army in stiff competition with the US M-1A1, the West German Leopard II, and the British Challenger tanks (Rudney, 1988a:30). In the fall of 1988, it was revealed that the AMX Leclerc MBT costs were already 26 per cent higher than initially estimated. According to the Director of the Leclerc programme at the Land Weapons Systems Directorate, Pierre Kaplan, the current cost of one tank ($4.5 million [FFr 29.5 million] on the basis of a production run of 100) is no more than 17 per cent above that which had been planned in 1982 (*Defense & Armaments Héraclès International*, 1989a:33). The concern that the AMX Leclerc MBT was going to become too expensive has been reduced since it was recently announced that Canada is interested in co-production of an important number of the tank's component parts in its own domestic facilities. Under the accord, the French Army would be expected to come up with a firm order for 1000 units, whereas the Canadians would probably order a minimum of 1600. The final cost per unit of the tank will probably be higher than the $4.5 million, due to the late start of the contract, which would not go into effect until 1991. The project is also estimated to last ten years, which adds to additional expenses (*Defense & Foreign Affairs*, 1989a:30).

In the summer of 1989, Chevènement outlined the armed forces' budget for the following four years. The equipment budget for nuclear and conventional programmes amounted to $66.8 billion (FFr 437.8 billion): $15.7 billion (FFr 103.1 billion) in 1990, $16.4 billion (FFr 107.2 billion) in 1991, $17.0 billion (FFr 111.5 billion) in 1992 and $17.7 billion (FFr 116.0 billion) in 1993), thus, a $6.4 billion (FFr 42.0 billion) reduction in constant funds from the original 1987–91 Military Programming Law (Schwartzbrod, 1989c:36).

Mitterrand said that the 1990–91 funds would be cut by $2.4–2.7 billion (FFr 16-18 billion) from the total of $34.0 billion (FFr 223.0 billion) originally projected. In addition, he said that for the four years which include 1992 and 1993, the cuts would amount to $6.1–6.9 billion (FFr 40-45 billion). All of the major programmes would be maintained, but there was no specification as to how the allocations would be apportioned (Fouquet, 1989b:979). Chevènement had indicated he needed $66.5–69.2 billion (FFr 436-454 billion) for 1990–93 to maintain the projected six per cent rate of increase from 1987—an increase which has already been stopped by Rocard and Bérégovoy.

The 1990 defence budget

Already by September of 1989, it was disclosed that the 1990 defence budget for both equipment and personnel would amount to FFr $28.9 billion (189.4 billion), which is a 3.88 per cent increase over the 1989 fiscal year. Nuclear and conventional weapon programmes were allocated $15.6 billion (FFr 102.1 billion), an increase by 4.2 per cent (although $153 million—FFr 1.0 billion—lower than Mitterrand had said). As expected, the funding will be paid for by a cut of about 3739 personnel. The budget will fund continued studies for the S4 missile, installations of the M4 MIRVed missile in two SSBNs, the Hadès missile programme and the delivery of 13 Mirage 2000N ASMP-carrying aircraft. As planned, the allocations for the SYRACUSE II satellite and Helios shuttle with increase 52.3 per cent for 1990 (Isnard, 1989u:894–95). The Air Force is also planning to order another 28 Mirage 2000s for 1990 (Isnard, 1990:54).

The budget, including outlays for pensions, increased to $35.0 billion (FFr 230.8 billion). However, with budgetary restraints, Prime Minister Michel Rocard only agreed to guarantee $32.1 billion (FFr 210.3 billion) for 1990–91, followed by a 'promise' of $34.7 billion (FFr 227.5 billion) at 1990 prices for the following two years. Mitterrand's input has the condition that nothing related to the prestrategic and strategic nuclear programmes could be touched by any cuts in funding. Minister of Defence Chevènement was even invited to make savings on conventional systems to save money... In reality, *Le Triomphant* will be delayed by six months, the number of Mirage 2000N limited to 45 aircraft, the S4 missile still suspended and nuclear tests cut from eight to six per year with smaller intervals between the tests (Isnard, 1989l:48).

There has been considerable discussion as to whether France's military appropriations are high enough for the armed forces to maintain and achieve all the planned programmes. Senator Jean Francon, among others, suggests that the defence sector should be allocated 4.5–5 per cent of the gross national product (GNP), or else France must seriously reconsider the role of its armed forces in the world (*International Defense Review*, 1988:1238–239). One of the problems, for example, is that France must spend about $153 million (FFr 1.0 billion) of the defence budget every year to rotate some 30 000 troops to new posts with all of the related problems and expenses of relocating households. Servicemen must find a new job for the spouse and new schools for the children, among other things. In addition, there is evidence that military personnel are increasingly concerned about the employment security of the armed forces. They do not have a union to negotiate their contracts or to protect their rights and the military, in an attempt to maintain its' operational capability, has developed the 'habit of putting onto the labour market a young population (under 40 years old) after it has completed its' fifteen years' service', to quote Jaques Isnard (1989r:26). In 1974, this was the case for most of the West European militaries, and resulted in strikes and riots. In 1989–90, the situation is similar, only it is restricted to France. The 'Armed Forces 2000' concept will cut the armed forces substantially, and the Defence Ministry is already facing harsh opposition from the Finance Ministry, which wants to increase the military's operational costs (Isnard, 1989r:26).

Except for the nuclear forces, there have always been cost cutting in the expenditure levels mandated by the Military Programming Laws. Prime Minister Michel Rocard even referred to the 1987–91 Law as a 'work of pure fiction', considering that most of the programmes were either delayed, cancelled or reduced, at the same time such new programmes as the Hercules transport aircraft purchase from Lockheed were added to the Law (Isnard, 1989k:40). Jaques Isnard, a prominent French military analyst and political observer argues, quoting Giscard d'Estaing, that this will always be the case because France is the only medium-sized power on the European continent; 'which seeks to have both a nuclear deterrent and a coherent conventional defence within a financial envelope of less than 3.7 per cent of the national wealth' (D'Estaing, quoted by Isnard, 1989k:40). Isnard observes that France is located on a continent with an increasing willingness to seek disarmament in the long term and, furthermore, is a nation which has 1.5 million of its citizens living outside of Europe. France has established strategic and economic interests from the French Guiana (the focus of European space activities) to French Polynesia (which provides France with a site for its independent nuclear experimentation). Nevertheless, the French Government's mid-term review of the 1987–91 Military Programming Law in 1989, does reaffirm France's efforts to remain a militarily strong, independent nuclear power of global status in the 1990s.

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Appendix

Calculations for chapters 1–10. Conversion from French francs (FFr) to US$ ($), Deutsche Mark (DM) and $ into FFr, and British £ into FFr. All conversions are calculated at market rate.

Sources: IMF (1989) 'International Financial Statistics', Oct.; and IMF (1987) *International Financial Statistics Yearbook* (Washington DC: International Monetary Fund)

Chapter 1. Introduction

FFr 182.36 billion÷FFr 6.5541 (1989)≈$27.8 billion
FFr 189.4 billion÷FFr 6.5541 (1989)≈$28.9 billion

Chapter 2. Doctrines and politics

not applicable

Chapter 3. Nuclear testing and French presence overseas

FFr 414 million÷FFr 4.9136 (1977)≈$84.3 million
FFr 644 million÷FFr 4.9136 (1977)≈$131.1 million
FFr 800 million÷FFr 8.9852 (1985)≈$89.0 million
FFr 500 million÷FFr 6.0488 (1988)≈$82.7 million
FFr 120 million÷FFr 6.0803 (1987)≈$19.7 million
FFr 1.2 billion÷FFr 6.0488 (1988)≈$198 million

Chapter 4. Military co-operation

not applicable

Chapter 5. The relationship with the FRG

DM 14.7 billion÷DM 2.9440 (1985)≈$5 billion
$4.993 billion x FFr 8.9852 (1985)≈FFr 44.9 billion
DM 16.1 billion÷DM 2.9440 (1985)≈$5.5 billion
$5.469 billion x FFr 8.9852 (1985)≈FFr 49.1 billion
DM 2.172 billion÷DM 2.9440 (1985)≈$738 million
$738 million x FFr 8.9852 (1985)≈FFr 6.6 billion

Chapter 6. The French position in a common European defence

$150 billion x FFr 6.5541 (1989)≈FFr 983 billion
$120 billion x FFr 6.5541 (1989)≈FFr 786.5 billion
$165 billion x FFr 6.5541 (1989)≈FFr 1081.4 billion

Chapter 7. The French nuclear deterrent

FFr 238 million÷FFr 6.5541 (1989)≈$36.3 million
FFr 257 million÷FFr 6.5541 (1989)≈$39.2 million
FFr 40 billion÷FFr 6.5541 (1989)≈$6.1 billion
FFr 120 billion÷FFr 6.5541 (1989)≈$18.3 billion
FFr 1.97 billion÷FFr 6.5541 (1989)≈$300 million
£830 000 x £1.7692 (1988)≈$469 139
$469 139 x FFr 6.0488 (1988)≈FFr 2.84 million
FFr 10 billion÷FFr 6.5541 (1989)≈$1.53 billion

Chapter 8. The structure and organization of the Armed Forces

FFr 1.8 billion÷FFr 6.5541 (1989)≈$275 million
FFr 120 million÷FFr 6.9622 (1986)≈$17.2 million
FFr 560 million÷FFr 6.9622 (1986)≈$80.4 million
FFr 1.36 billion÷FFr 6.9622 (1986)≈$195 million
FFr 757.7 million÷FFr 6.9622 (1986)≈$109 million
FFr 1.36 billion÷FFr 6.9622 (1986)≈$195 million
FFr 2.764 billion÷FFr 6.9622 (1986)≈$397 million
FFr 45 billion÷FFr 6.0488 (1988)≈$6.46 billion

Chapter 9. The arms trade and industry

FFr 25.0 billion÷FFr 6.5541 (1989)≈$3.8 billion
FFr 18.0 billion÷FFr 6.5541 (1989)≈$2.7 billion
FFr 44.5 billion÷FFr 8.9852 (1985)≈$4.9 billion
FFr 61.2 billion÷FFr 8.7391 (1984)≈$7.0 billion
FFr 25.5 billion÷FFr 6.9261 (1986)≈$3.7 billion
FFr 27.3 billion÷FFr 6.0803 (1987)≈$4.5 billion
FFr 28.9 billion÷FFr 6.0803 (1987)≈$4.8 billion
FFr 34.1 billion÷FFr 6.0803 (1987)≈$5.6 billion
FFr 37.5 billion÷FFr 6.0488 (1988)≈$6.2 billion
FFr 20.0 billion÷FFr 6.5541 (1989)≈$3.0 billion
FFr 66.0 billion÷FFr 6.5541 (1989)≈$10.1 billion
FFr 38.4 billion÷FFr 6.0488 (1988)≈$6.3 billion
FFr 176.6 billion÷FFr 6.0488 (1988)≈$29.2 billion
FFr 90.8 billion÷FFr 6.0488 (1988)≈$15.0 billion

FFr 40–45 billion÷FFr 6.5541 (1989)≈$6.1–6.9 billion
FFr 2.3 billion÷FFr 6.5541 (1989)≈$351 million

Chapter 10. Budgets and procurement: a brief review

FFr 88.6 billion÷FFr 4.2256 (1980)≈$21 billion
FFr 1.3 billion÷FFr 4.2256 (1980)≈$308 million
FFr 104.4 billion÷5.4346 (1981)≈$19.2 billion
FFr 830 billion÷FFr 7.6213 (1983)≈$109 billion
FFr 474.0 billion÷FFr 6.9622 (1986)≈$68.1 billion
FFr 30.0 billion÷FFr 6.0488 (1988)≈$5 billion
FFr 22.5 billion÷FFr 6.0803 (1987)≈$3.7 billion
FFr 5.5 billion÷FFr 6.0803 (1987)≈$904 million
FFr 9.7 billion÷FFr 6.0803 (1987)≈$1.6 billion
FFr 20.6 billion÷FFr 6.0803 (1987)≈$3.4 billion
FFr 13.6 billion÷FFr 6.0803 (1987)≈$2.2 billion
FFr 6.4 billion÷FFr 6.0803 (1987)≈$1.0 billion
FFr 7.7 billion÷FFr 6.0803 (1987)≈$1.3 billion
FFr 9.2 billion÷FFr 6.0803 (1987)≈$1.5 billion
FFr 86.2 billion÷FFr 6.0803 (1987)≈$14.2 billion
FFr 75.7 billion÷FFr 6.9622 (1986)≈$10.9 billion
FFr 182.36 billion÷FFr 6.5541 (1989)≈$27.8 billion
FFr 13.9 billion÷FFr 6.0488 (1988)≈$2.3 billion
FFr 45.0 billion÷FFr 6.0488 (1988)≈$7.4 billion
FFr 29.5 million÷FFr 6.5541 (1989)≈$4.5 million
FFr 437.8 billion÷FFr 6.5541 (1989)≈$66.8 billion
FFr 103.1 billion÷FFr 6.5541 (1989)≈$15.7 billion
FFr 107.2 billion÷FFr 6.5541 (1989)≈$16.4 billion
FFr 111.5 billion÷FFr 6.5541 (1989)≈$17.0 billion
FFr 116.0 billion÷FFr 6.5541 [1989)≈$17.7 billion
FFr 42.0 billion÷FFr 6.5541 (1989)≈$6.4 billion
FFr 16–18 billion÷FFr 6.5541 (1989)≈$2.4–2.7 billion
FFr 223.0 billion÷FFr 6.5541 (1989)≈$6.1–6.9 billion
FFr 436–454 billion÷FFr 6.5541 (1989)≈$66.5–69.3 billion
FFr 189.4 billion÷FFr 6.5541 (1989)≈$28.9 billion
FFr 102.1 billion÷FFr 6.5541 (1989)≈$15.6 billion
FFr 1.0 billion÷FFr 6.5541 (1989)≈$153 million
FFr 230.8 billion÷FFr 6.5541 (1989)≈$35.1 billion
FFr 210.3 billion÷FFr 6.5541 (1989)≈$32.1 billion
FFr 227.5 billion÷FFr 6.5541 (1989)≈$34.7 billion

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